

AUSTRALOPITHECUS AFRICANUS: THE LATEST LIGHT UPON MAN'S ANCESTRY.

THE ILLUSTRATED LONDON NEWS

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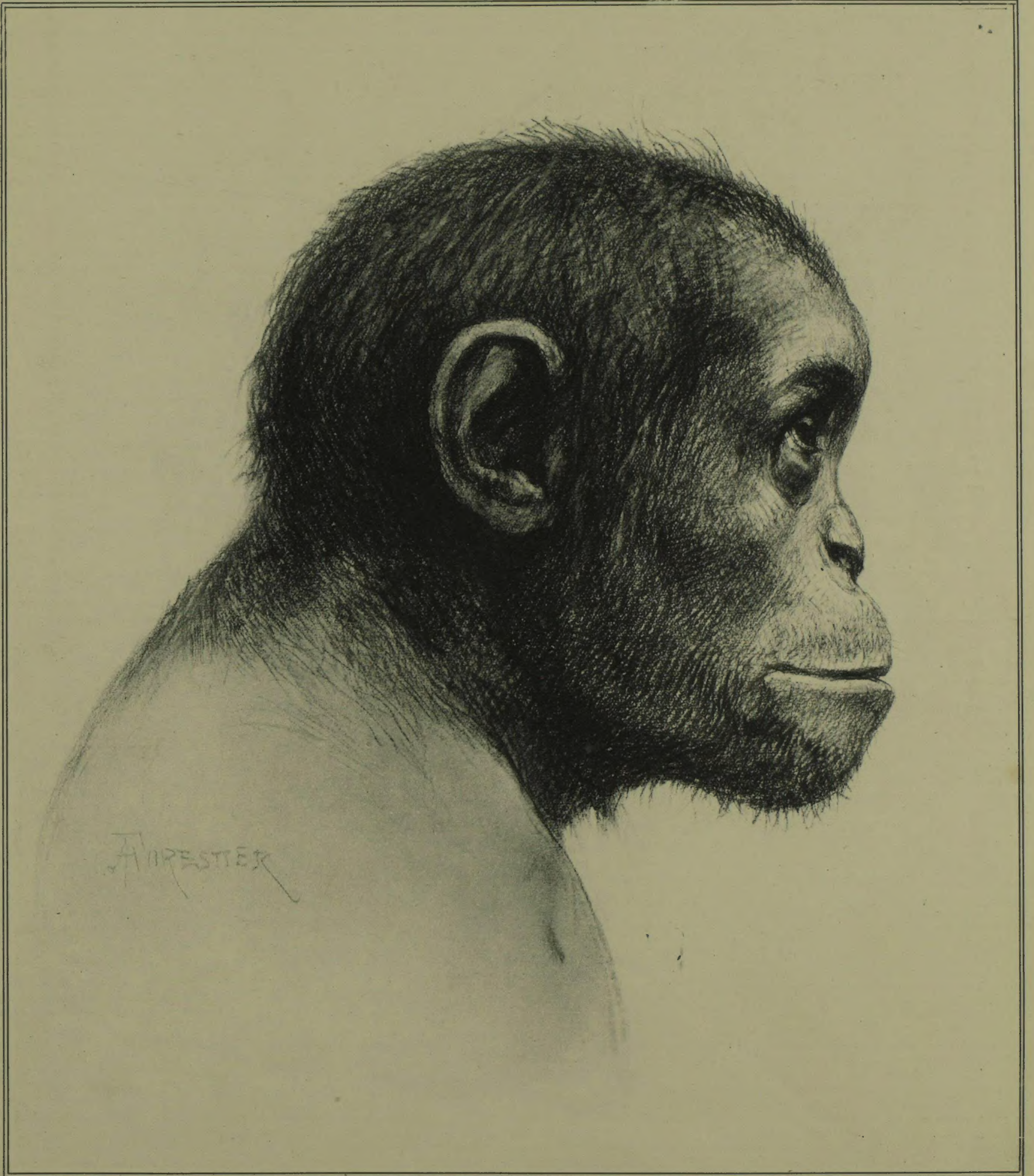
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THE LATEST LIGHT UPON MAN'S ANCESTRY: A RECONSTRUCTION DRAWING OF THE HEAD (ACTUAL SIZE) OF THE YOUNG AUSTRALOPITHECUS AFRICANUS, REPRESENTED BY THE TAUNGS SKULL RECENTLY DISCOVERED IN BECHUANALAND.

The Taungs skull, so named from the place of discovery, belongs to a young creature, probably only three or four years old, and, in the opinion of Professor Raymond Dart, of the Witwatersrand University, who identified it, "exhibits an extinct race of apes intermediate between living anthropoids and men." He has named it *Australopithecus africanus*, but it must be remembered that "australo" here has nothing to do with Australia, and merely means "south." Professor Dart regards the skull as representing "a man-like ape" rather than "an ape-

like man." Photographs of the skull itself are given on page 241, and its place and time in human ancestry are discussed and illustrated, on page 240, by Professor G. Elliot Smith, F.R.S., the famous anatomist and anthropologist. Mr. Forestier's reconstruction drawing of the complete creature, compared with the later "Rhodesian man," appears on page 239. In the above head he has cleverly combined with the prognathous simian jaw a more human cranium, an incipient sense of humour, and a dawning light of intelligence.

RECONSTRUCTION DRAWING BY A. FORESTIER, UNDER THE DIRECTION OF PROFESSOR G. ELLIOT SMITH, F.R.S. (COPYRIGHT.)



By G. K. CHESTERTON.

THE dome of St. Paul's has been a matter of interest to very different kinds of people just lately. There are different policies about it, as there are different policies about all that it represents. There is the school of those who think the thing can only be mended by hammering at it. There is the school of those who think it can only be mended by being ended. There are the milder spirits who resemble Sydney Smith's child with the tortoise: they would be content to continue stroking the dome of St. Paul's by way of pleasing the Dean. Unfortunately, it is not so very easy to please the present Dean. I myself, on several occasions, have conspicuously failed. For, though he is supposed to belong to the liberal school, it would be an error in his case to suppose that an all-embracing liberality means a desire to embrace everybody. Well, there are some of us who think that sort of liberality is merely like mending the dome that it may last longer. There are others of us who think it is like trying to build it again with the ball on top of the cross, or possibly with the dome on top of the cross. But whether we agree with him or not, nobody will deny that the present Dean knows what he wants, and knows how to say what he wants in excellent English. But I should very much like to know what a number of other people want, or whether they know what they want. There is a trick to-day of a man asking himself questions imperiously and then answering them feebly or not at all. It is very natural, because it is so much easier to watch a building fall down than to be really responsible for the sort of materials that will prop it up. When London Bridge was broken down, some sociologists proposed that it should be built up with pins and needles, while others held that penny loaves were indicated. The Dean of St. Paul's, with his disdain of popular or social Christianity, would probably sniff at building with penny loaves; but I doubt whether he can build any better with pins and needles. Anyhow, nobody can build with sticks and straws, merely because they are progressive straws that show how the wind is blowing.

Among others, the Gentleman with a Duster has been dusting the dome of St. Paul's, and has even affected to flick the cross off the top with a flourish of his favourite instrument. Of course, the flourish is only intended to be sarcastic or symbolic. He asks what we want with the cross when we are not really Christians; but he means that we ought to be Christians. The extraordinary thing is the sort of Christians we ought to be. It seems that we ought to abandon a religion of singing hymns and confessing ourselves miserable sinners in favour of the God of Evolution. Then we should do strict justice, reap what we have sown, and abandon low animal amusements. Now if the clerks and merchants bustling round St. Paul's are not Christians, it is generally because they are Evolutionists. If they do injustice, they excuse it as the evolutionary struggle for life. If they have animal amusement, evolution excuses it by their animal origin. At least they are more likely to do that than to sing hymns to excess, or roll on the pavement howling that they are miserable sinners.

In short, the writer in question begins by saying that the cross on St. Paul's is a mockery because it

does not stand for Christianity, and ends by suggesting that it is a mockery because it does stand for Christianity and does not stand for Evolution. But why should a cross in any case stand for Evolution? Why should any evolutionist selecting a symbol select the cross? I can suggest a great many symbols for that vague evolutionary faith and hope which would be much more appropriate. Thus, if I wanted to commemorate the finality and conclusiveness of Science, the security with which we can all repose in her conclusions, I should select a weather-cock. If I wished to suggest the firmness with which it can put its foot down in moral matters, I should select a snake. It is true that when I read the description of the Unknown God of science which we owe to Sir William Watson—

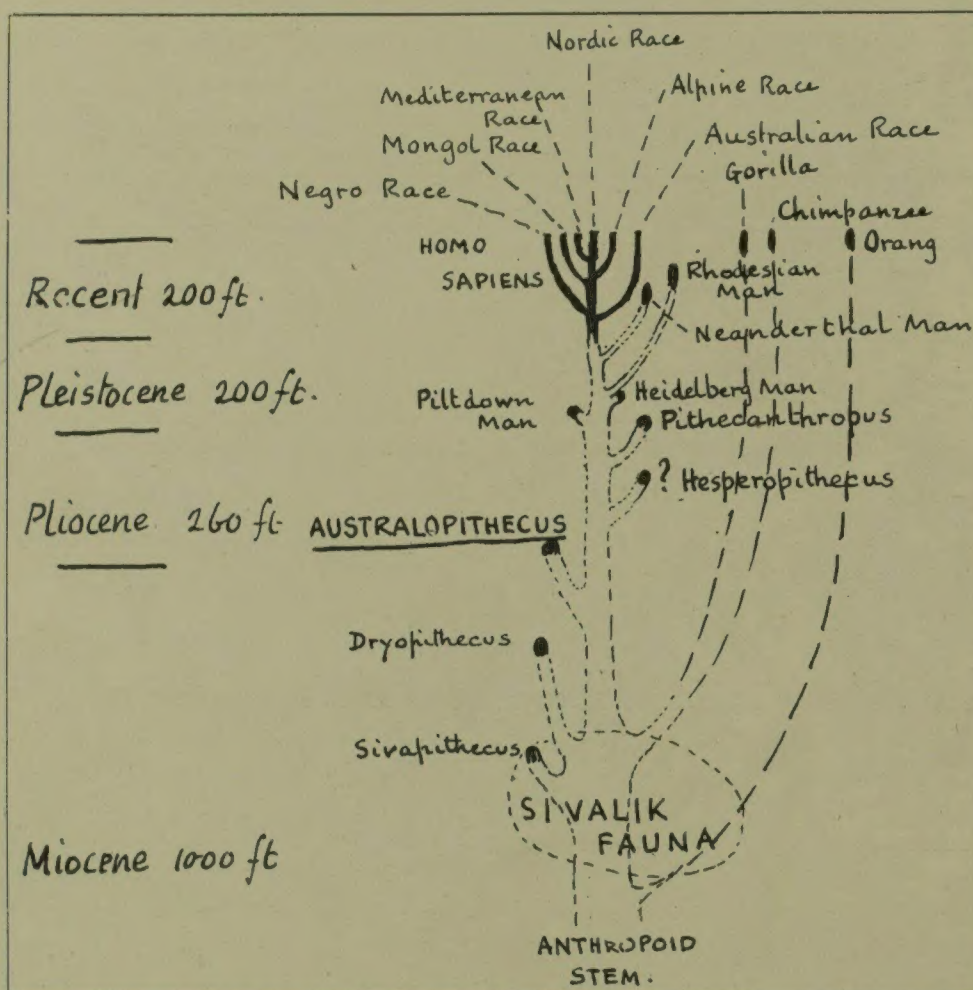
Unmeet to be profaned with praise
Is He whose coils the world enfold—

and fruitless extension without fruition. It is a bean-stalk that is always growing more and more stalk and never growing beans. For if the gentleman really wants a sign set in the heavens over the dome of St. Paul's to show that we all believe in evolution, he has certainly let himself in for a rather alarming vision. The essential of the symbol must be that it must be different every day. It must also be more complicated every day: "the change from the simple to the complex," as Herbert Spencer defined his evolution. Its arms might crook and curl till it became the wheel of Buddha, or it might grow more and more waving arms till it looked like the "dancing star" of Nietzsche. It might turn into a triple or Papal cross (which he would not like at all), or generally exhibit a development of the most elaborate and ritualistic character. That would really be a cross that had become a symbol of evolution. But if the cross of St. Paul's was

always reeling and wavering, it would seem natural that the dome of St. Paul's should be reeling and wavering too. Perhaps we ought to see without any special disquiet that dark dome heaving and swaying in the sky like a monstrous jelly-fish or a captive balloon. Perhaps it is meant to grow more and more like that, to be a colossal image of the cosmic idea of evolutionary change. Perhaps those meddling people who are mending it, and fixing it up again so that it will not fall down, are rashly interfering with its evolution.

Personally, however, I am a believer in static ideals of architecture—in putting buildings together so that they will stand up and even stand still. The great art of architecture is the most arresting and obvious of the denials which the higher reason really offers to the merely evolutionary vision of formlessness and change. Properly understood, of course, all the arts are pictures—that is, they are all attempts to stop the dissolving view from dissolving. They are all snapshots, in the sense that they say in some sense with Faust, "Oh, still delay, thou art so fair." A landscape painter would be very much annoyed, in coming back to his easel, to find that grass had grown on the canvas and the trees were an inch taller than when he painted them. But architecture is the most solid and striking assertion of man's sublime ambition of finality; and that is one reason why we are all glad that the money has come in handsomely to set men tinkering at the dome of St. Paul's.

If only we could tinker as hopefully at that darker and more sublime dome of the human brain! If only one could open a subscription to prevent a man from using the word "dogma" as if it were a term of terrified warning like "mad dog"! If only the money were coming in handsomely to provide a home or almshouse or asylum or something for people who will say "evolution" when they mean "progress"! They can gravely suggest, as here, that men may be lured away from low animal amusements merely by the belief that they are descended from animals. They can suggest that Nature reveals only the sternest justice—a man reaping only what he has sown, while the Tower of Siloam rocks above our heads, and the whirlwind of Job still comes upon us. In short, the modern mind can say anything that comes into its head, and things come much too easily into its head, as often occurs when there are too many holes in the dome.



SHOWING THE BRANCH OF THE ANTHROPOID FAMILY TREE TO WHICH THE OWNER OF THE TAUNGS SKULL PROBABLY BELONGED: A DIAGRAM TO ILLUSTRATE THE HYPOTHETICAL POSITION OF *AUSTRALOPITHECUS AFRICANUS* IF PROFESSOR DART'S CLAIMS ARE CONFIRMED. Professor G. Elliot Smith's article on the Taungs skull appears on page 240, and on the front page and page 239 are reconstruction drawings of the creature to which the skull belonged. The latter drawing shows also the later Rhodesian Man (reconstructed from the Broken Hill skull) whose position on the tree is also marked above, as well as that of *Pithecantropus*, a photograph of whose brain cast accompanies the article. Photographs of the Taungs skull are given on page 241.

From a Diagram Specially Drawn for "The Illustrated London News" by Professor G. Elliot Smith, F.R.S.

I always think of an octopus. A lady mathematician, who was also something of a mystic, once talked to me for about half an hour about what she called "The Spiral of Progress." For her, I suppose, the dome would be surmounted neither by a cross nor by a cock, but by a corkscrew. Only I gravely doubt whether her sort of corkscrew will ever find its ultimate and divine fulfilment in drawing any sort of cork. For her the heavens at which the sacred spiral pointed were full of vast mathematical diagrams drawn in dotted lines of stars. There was no probability that there would appear there among the clouds that Divine Bottle which for Rabelais was the reward of life.

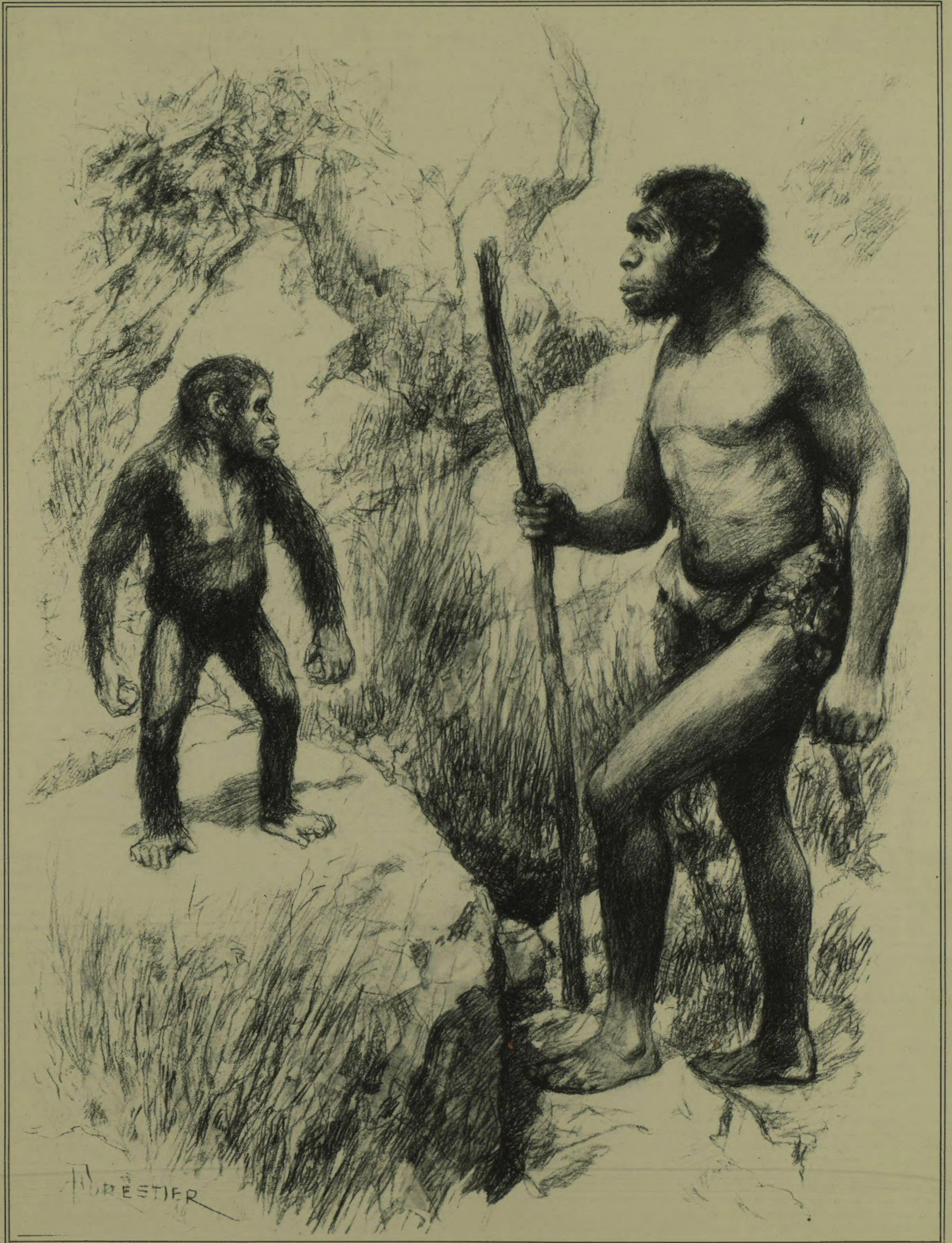
I would rather believe in fruition according to Rabelais than in this evolutionary notion of endless

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RECONSTRUCTED: AUSTRALOPITHECUS AND "THE RHODESIAN MAN."

A RECONSTRUCTION DRAWING BY A. FORESTIER, UNDER THE DIRECTION OF PROFESSOR G. ELLIOT SMITH, F.R.S.



LINKS IN THE CHAIN OF HUMAN EVOLUTION: AUSTRALOPITHECUS AFRICANUS (3 FT. HIGH, ON THE LEFT), REPRESENTING THE TAUNGS SKULL, AND HIS LATER COMPATRIOT, THE "RHODESIAN" (6 FT.), REPRESENTING THE BROKEN HILL SKULL.

The old dictum—"Ab Africa semper aliquid novi" (from Africa there is always something new) has once more been exemplified by the recent discovery of the Taungs skull in Bechuanaland. Its place in the story of human evolution is fully discussed in Professor G. Elliot Smith's article on page 240, and the skull itself is illustrated on page 241, while on the front page is Mr. Forestier's reconstruction drawing of the head. Professor Elliot Smith writes: "Mr. Forestier has some justification for representing in his beautiful drawing the arms of the infant *Australopithecus* somewhat shorter than those of the known apes. It must be

remembered that in his picture the Early Pliocene (or is it Miocene?) baby is looking across a span of a million or so years to gaze upon his fellow-countryman, the Rhodesian, who, for all we know, was only a few centuries old, perhaps still living when the Pyramids were built." Their positions in the anthropoid family tree are marked in Professor Elliot Smith's diagram on page 238. The Rhodesian (or Broken Hill) skull was found in 1921. Illustrations of it, with an article by Sir Arthur Smith Woodward, F.R.S., appeared in our issue of November 19 in that year.—[Drawing Copyrighted in the United States and Canada.]

AUSTRALOPITHECUS, THE MAN-LIKE APE FROM BECHUANALAND:

A GREAT DISCOVERY THROWING NEW LIGHT ON HUMAN ANCESTRY.

By Professor G. ELLIOT SMITH, F.R.S., Professor of Anatomy in the University of London, Author of "The Evolution of Man," etc.

WHATEVER interpretation future investigation will assign to the fossil remains of an anthropoid ape just brought to light at Taungs in Bechuanaland, there can be no question as to the exceptional interest and importance of the discovery, and of the greatness of Professor Raymond A. Dart's achievement, which is a fitting reward for his enthusiastic efforts to promote the study of human palaeontology and anthropology in South Africa. It was a happy circumstance that such a specimen fell into his hands, because he is one of the, at most, three or four men in the world who have had experience of investigating such material and appreciating its real meaning.

The last year (1922) that Dr. Dart spent at University College, London, was a time when intensive studies were being made of casts of the brain-cases of men and apes. In that year Dr. (now Sir Arthur) Smith Woodward had handed over to us the beautiful cast of the Rhodesian man's brain-case; and that brilliant genius the late Professor John Hunter (whose recent death in London was so grave a catastrophe for these studies) was making and studying the brain form of every fossil type of man and ape, replicas of which Professor Dart took with him to Johannesburg on his appointment as Professor of Anatomy at the Witwatersrand University two years ago.

As soon as he arrived in South Africa he began to cultivate an interest in anthropology and to stimulate his students and colleagues to help him in his search for new information that would throw light upon the evolution of man and the history of civilisation. Hence this great discovery is no accident, but the just reward of a persistent and intelligently organised search for such things.

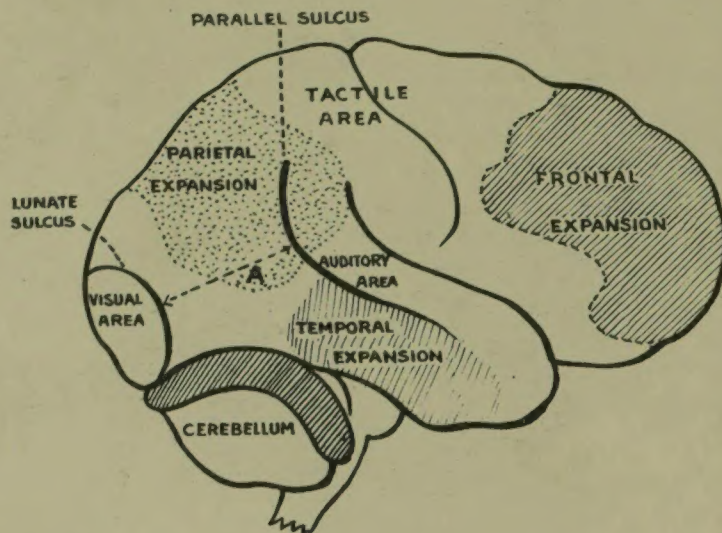
from the simian, which include the gorilla, chimpanzee, orang, and gibbon.

Professor Dart found that the broken front end of this natural "brain-cast"—if the use of this term

think he is—in saying that it shows a greater resemblance to man than any other ape, this statement must be qualified by the explanation that the step in advance had not carried *Australopithecus* far beyond the status of the gorilla.

But if the progress in the direction of the human family is only slight, it is very important because (a) it is not partial, but affects so many details of the face and skull, and (b) it involves the brain, which obviously is the real criterion of any advance towards the intellectual supremacy of the human family. This infant ape had a brain almost as big as the largest adult gorilla's, so that in the adult *Australopithecus* it may have attained a size of 650 or even 700 c.c. If this is only about half the average dimensions of the modern European brain, it is within 250 c.c. of the earliest and most primitive human brain so far discovered—that of *Pithecanthropus*, the capacity of which was about 900 c.c., or at most 950.

But Professor Dart calls attention to certain features that are more significant than mere bulk of brain as indications of cerebral progress. I am unable to detect the points in question in his photographs, but we can confidently accept his statement (graphically expressed in his diagram) that the lunate sulcus is much more widely separated from the parallel than is the case in the other apes. I have constructed a series of three diagrams to help the reader to understand the meaning of this technical phraseology and how this fact is a criterion of mental development. The differences revealed when the brains of men and apes are compared affect mainly three localised areas, which continue expanding to varying degrees in different human



ONLY SLIGHTLY LARGER THAN THAT OF *PITHECANTHROPUS* (ILLUSTRATED ON THIS PAGE): A DIAGRAM OF AN EXCEPTIONALLY SMALL AND APE-LIKE BRAIN (RIGHT SIDE) OF AN AFRICAN NEGRESS.

"The cubic capacity of this brain of an African negress," writes Professor G. Elliot Smith, "was only 1000 cc.—about 50 cc. greater than that of *Pithecanthropus*, the most ancient and primitive member of the Human Family so far discovered."

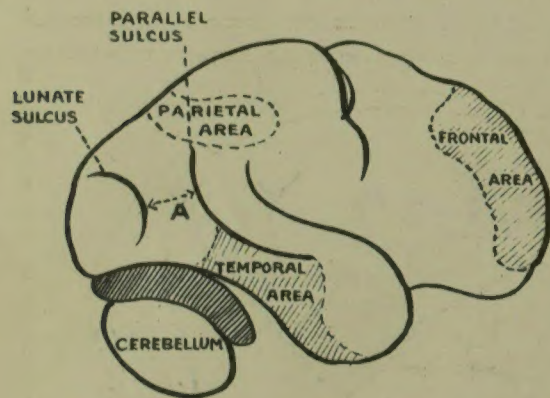
The three Diagrams on this page are after Diagrams specially drawn for "The Illustrated London News" by Professor G. Elliot Smith, F.R.S.

may be permitted for the mould of the interior of a brain-case that reveals the size and shape of the brain—fitted on to a broken piece of rock containing the skeleton of the face, which, however, only emerged after the limestone matrix had been carefully chipped away. This is the first time that anything more than the jaw belonging to a large fossil anthropoid has been found. And a very remarkable face it is, as anyone may see by studying the photographs on page 241. As the first permanent molar teeth had only just erupted—an event which usually happens in the sixth year in the modern human child—it is clear that the creature was a mere infant, perhaps only three or four years old. At that age, even in the living anthropoids, many of the distinctively simian traits are not nearly so obtrusive as they become in the adult ape. But, after making due allowance for this age-factor, the form of the forehead, the absence of the salient eyebrow-ridges, the features of the jaws and teeth, the shape of the nose and orbits, the slenderness of the cheek-arches, and the "harmonious" proportions of face and head, all suggest the inference that this unmistakable ape reveals an early stage of the refinement that eventually led ages later to the attainment of human status.

THE BRAIN.

The fact that the brain had not attained proportions clearly differentiating it from that of the gorilla or chimpanzee emphasises the need for caution in claiming the nearer kinship of *Australopithecus* to the human family. If Professor Dart is right—and I

compared affect mainly three localised areas, which continue expanding to varying degrees in different human

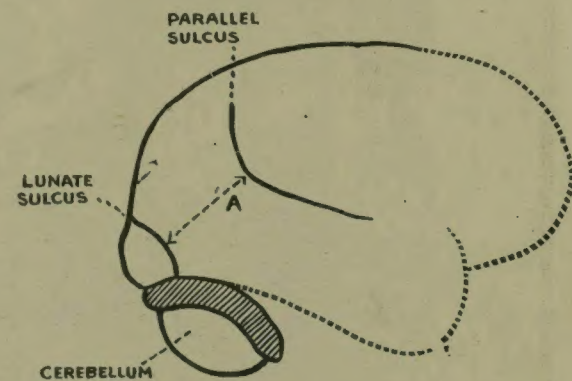


DRAWN TO THE SAME SCALE AS THAT OF THE NEGRESS: A DIAGRAM OF A LARGE GORILLA'S BRAIN (CUBIC CAPACITY ABOUT 600 CC.).

"The chief increase in size in the human brain," writes Professor G. Elliot Smith, "is due to the disproportionate expansion of the three regions labelled 'frontal area,' 'parietal area,' and 'temporal area' respectively. The parietal and temporal expansions are responsible for the pushing asunder of the parallel and lunate sulci (measured at A)."

THE DISCOVERY.

Towards the end of 1924, one of Professor Dart's students, Miss Josephine Salmons, brought to Johannesburg the fossilised skull of a monkey that had been obtained (50 ft. below the surface and 200 ft. from the face of the limestone cliff) during blasting operations by the Northern Lime Company at Taungs, in Bechuanaland, eighty miles north of Kimberley. Dr. R. B. Young, the Professor of Geology in Johannesburg, visited the spot and brought back a collection of fossils, amongst which there was the natural cast of a brain-case, at once recognised by Professor Dart as having a form distinctive of an anthropoid ape—the first time such a specimen has ever been found and identified. It was almost as big as the largest brain obtained from a recent gorilla, and presented features that established the kinship of its original possessor with the living African anthropoids, the gorilla and chimpanzee, but also indicated that it did not belong to either of these genera. Professor Dart, in fact, had to invent a new genus, which he called *Australopithecus*, for the reception of this hitherto unknown ape. But it is doubtful whether he is justified in creating a new family also, because there seems to be no just reason for excluding it



FOR COMPARISON WITH THOSE OF THE NEGRESS AND THE GORILLA: A CORRESPONDING DIAGRAM OF THE RIGHT SIDE OF THE BRAIN (OR CAST OF BRAIN CASE) OF *AUSTRALOPITHECUS* (THE TAUNGS SKULL), ACCORDING TO PROFESSOR DART'S INTERPRETATION. This diagram shows, says Professor G. Elliot Smith, "the pushing asunder of the lunate sulcus and the parallel sulcus at A, which Professor Dart claims to be a distinctively man-like feature of the brain of *Australopithecus*."

beings. The frontal expansion (which is responsible for man's lofty brow) is intimately related to the ability to acquire skill in movement and the mental concentration involved in learning. The parietal expansion is concerned with the attainment of skill in sensory discrimination and the interpretation of the meaning of experience. What precisely the temporal expansion implies beyond an increased appreciation and understanding of auditory experience is not known. The diagrams will make it clear that the pushing asunder of the parallel and lunate sulci (measured at A) is an indication of parietal expansion—an increase in "handiness," of tactile discrimination and understanding—in other words, a definite advance in intelligence. If this claim of Professor Dart's is sound—and I think it is—then Mr. Forestier has some justification for representing in his beautiful drawing (page 239) the arms of the infant *Australopithecus* somewhat shorter than those of the known apes. It must be remembered that in his picture the Early Pliocene (or is it Miocene?) baby is looking across a span of a million or so of years to gaze upon his fellow-countryman the Rhodesian, who, for all we know, was only a few centuries old, perhaps still living when the Pyramids were built.

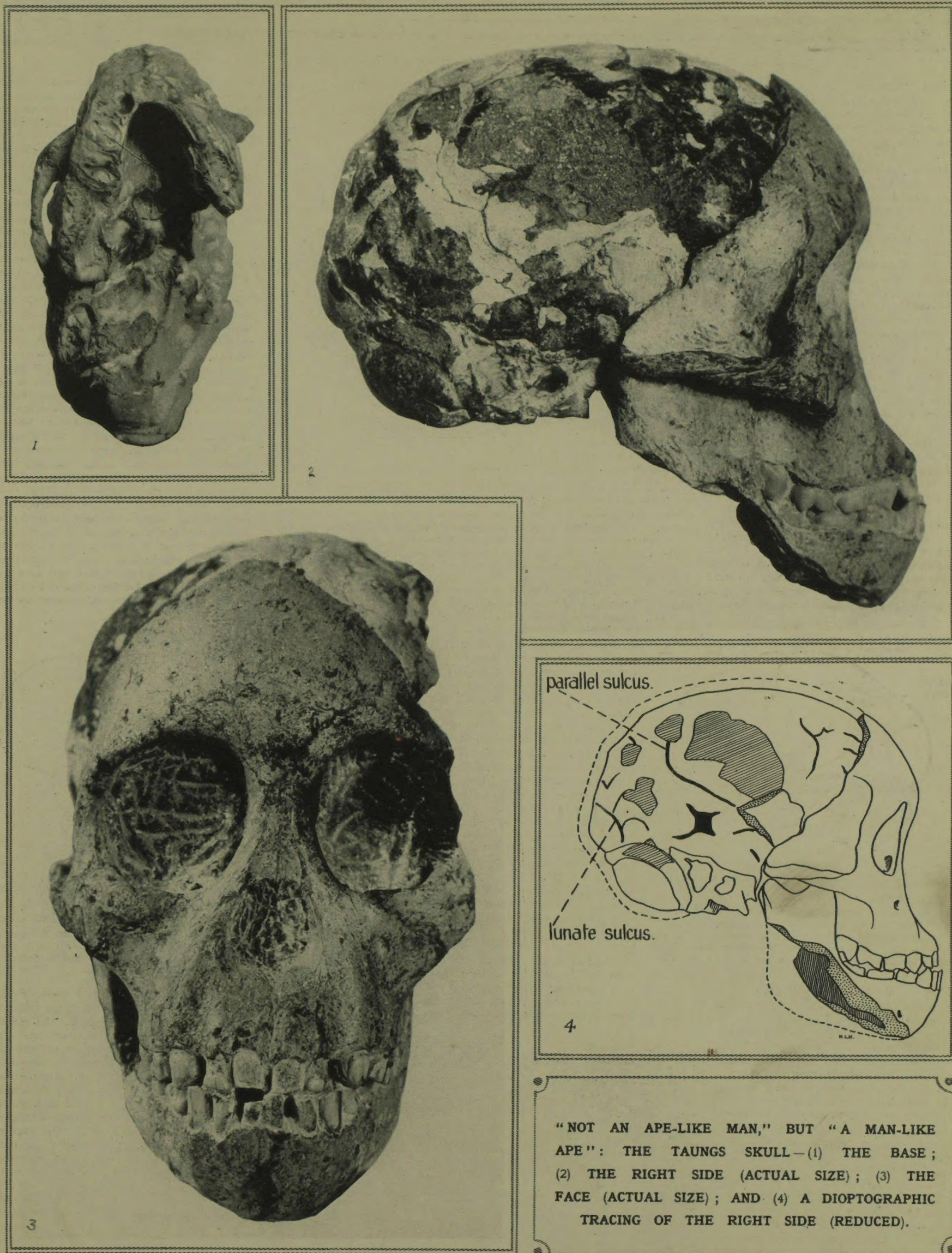


FOR COMPARISON WITH THE TAUNGS SKULL (*AUSTRALOPITHECUS AFRICANUS*): THE ENDOCRANIAL CAST OF *PITHECANTHROPUS* (OF JAVA), "THE EARLIEST AND MOST PRIMITIVE HUMAN BRAIN" YET DISCOVERED—A PHOTOGRAPH ONLY RECENTLY ARRIVED IN ENGLAND.

Professor G. Elliot Smith's diagram of the anthropoid family tree (on page 238) shows the relative positions of *Australopithecus africanus* (the Taungs skull) and *Pithecanthropus*, whose remains were found in Java by Dr. Dubois.—[By Courtesy of Professor G. Elliot Smith, F.R.S.]

THE TAUNGS SKULL IN ITS ACTUAL SIZE: ANOTHER "MISSING LINK."

ILLUSTRATIONS PREPARED BY H. LE HELLOCO FOR PROFESSOR RAYMOND A. DART, OF THE WITWATERSRAND UNIVERSITY. REPRODUCED BY COURTESY OF "NATURE."



"NOT AN APE-LIKE MAN," BUT "A MAN-LIKE APE": THE TAUNGS SKULL—(1) THE BASE; (2) THE RIGHT SIDE (ACTUAL SIZE); (3) THE FACE (ACTUAL SIZE); AND (4) A DIOPTROGRAPHIC TRACING OF THE RIGHT SIDE (REDUCED).

The now famous Taung skull was found in a limestone cliff near Taung, in Bechuanaland, at a vertical depth of 50 ft. and a horizontal depth of 200 ft. It was sent for examination to Professor Raymond A. Dart, Professor of Anatomy in the University of Witwatersrand, at Johannesburg, who decided that it represents "an extinct race of apes intermediate between living anthropoids and man." Describing and discussing it fully in "Nature" for February 7, he writes: "The specimen is juvenile, for the first permanent molar tooth only has erupted in both jaws on both sides; i.e., it corresponds anatomically with a human child of six. . . . Unlike Pithecanthropus, it does not represent an ape-like man, a caricature of precocious hominid failure, but a creature well advanced beyond modern anthropoids in just those characters, facial and cerebral, which are to

be anticipated in an extinct link between man and his simian ancestor. At the same time it is . . . no true man. It is, therefore, logically regarded as a man-like ape. I propose tentatively, then, that a new family of *Homo-simidae* be created for the reception of the group of individuals which it represents, and that the first known species of the group be designated *Australopithecus africanus*, in commemoration, first of the extreme southern (*australis*) and unexpected horizon of its discovery, and secondly, of the continent in which so many new and important discoveries connected with the early history of man have recently been made, thus vindicating Darwin's claim that Africa would prove to be the cradle of mankind." An article on the discovery, by Professor Elliot Smith, is on page 240, and on pages 237 and 239 are reconstruction drawings by Mr. A. Forestier.

The World of the Theatre.

By J. T. GREIN.

WAR ON DEADHEADS.—ADVANCING ACTORS.

MR. VAL PRINSEP has declared war on first-night deadheads. He finds them stale and unprofitable, and will ban them on the occasion of his next *première*. I think he is right. Except as an obligato applause-maker, the something-for-nothing playgoer is an enemy of the theatre. You may say,

ironical, but full of *bonhomie*—a smile, in fact, which indicates that precious British dower, a sense of humour; and you have Sam Livesey.

At the first glance, you are a little awed by this monument of a man. He is the personification of virile force, of power; a man who holds his ground and stands no nonsense; yet a kindly man of whom you would feel that when he has fought you he will tender you his hand and offer to let bygones be bygones. Thus he is British to the core: a living emblem of a forceful race.

There were times when Sam Livesey was singled out to play the parts he looks—strong characters, built of blood and iron, as they said of Bismarck. This attempt to fit a personality to a rôle kept Livesey for some time in the first row of the second plane. He was a star unstarred. The critics were all for him; the public too; but somehow the managers did not rely on him as a real drawing power, although his every creation was complete, his progress steadfast.

Then in a lovable play, discovered by Aubrey Smith, that other fine actor and personification of all that makes an English gentleman—in "Possessions," a wonderful portrayal of a man's inner battle 'twixt purse-pride and paternal affection—a play that will be heard of all the world over—Sam Livesey galloped into his kingdom.

All of a sudden there was revealed to us a great emotional actor, whom one would be tempted to compare with Guitry senior, the French master. Yet there the comparison ended. Guitry is as French to the core as Livesey is English. There is similarity in approach—within they are poles apart. Livesey never manifests the actor. He is never stagey. There is no public to him; there is only the character into which he has merged his ego. And so in the great scene of the play, when the haughty, self-made, not wholly cultured Baronet M.P. is humbled in all that pride means—his belief in the fealty of his wife, his paternity, his conviction that money talks and can force the universe: shams one and all, as the story tells us—Livesey, overcome by his emotions, shed tears that came from the heart and drew us towards this tottering giant in infinite sympathy.

If thus to live a part is acting—then it is great acting indeed, for it makes all men kin, and we went hence in emotion and in the recognition of a man of mark.

This year begins to look like a fruitful vine—a crop of plays worth thought and consideration; nor



"THE DOLLAR PRINCESS" REVIVED AT DALY'S: MISS EVELYN LAYE AS ALICE, AND MR. PAUL ENGLAND AS FREDDY FAIRFAX.

Photograph by Stage Photo. Co.

"*Tu quoque!*"—for is not the critic, too, a deadhead? Yes; but his is a case of much for little. He often has to tax his intelligence to say something readable about a play of which really nothing is to be said. We deserve our seats, we critics, for we devote ourselves heart and soul to our task, and we are the best friends of the managers, even when we censure. I am told that a fierce criticism helps to make a play!

But your habitual society deadhead is, on the average, a nuisance. He often comes late, without regard for the players or for the other members of the audience, whom he (or she) disturbs—and will often omit even to say "Thank you" for our getting up. He is, despite his applause, very frequently the foremost detractor of the show to which he is a bidden guest. He behaves in the theatre as he would not dare when in a private circle. At least there he keeps his criticisms until he is outside; in the theatre, however, he all too often runs down the performance in the *entr'acte*—and, in spite of that, after the performance goes promptly behind the scenes to congratulate the manager or actors whose work he has belittled. Here is an anecdote culled from life. It was at His Majesty's after a failure. The play was "The Happy Island"—it was hopeless, and it ran a week or so. Yet lots of society deadheads trooped through the iron door towards Tree's room to congratulate the manager with whom they inwardly condoled. One said to another, "This is the most 'Pygmalion' show I have ever seen." "You are right," was the answer. "But let's go to Herbert and say nice things about it." And they did.

Now these people deserve to be barred, and it is a good thing that a young manager like Mr. Prinsep will force them to pay if they wish to be present on the first night. He might go a step further and follow the example of the Stage Society by closing the doors on late-comers as soon as the curtain has risen. Sometimes this trooping-in entirely rends the atmosphere of the play. But if Mr. Prinsep follows this good advice, he must see to it that the electric bells give fair warning. Now they work most perfunctorily, and we linger, innocently, while, without a signal, a new act is beginning.

Imagine the image of John Bull as you see him in *Punch*: a big, burly fellow, with well-moulded, round features, with powerful limbs and a certain sternness of mien, softened by a humorous smile—not broad but gentle, slightly



"THE DOLLAR PRINCESS" REVIVED AT DALY'S: MISS EVELYN LAYE AS ALICE, AND MR. CARL BRISSON AS HARRY Q. CONDER.

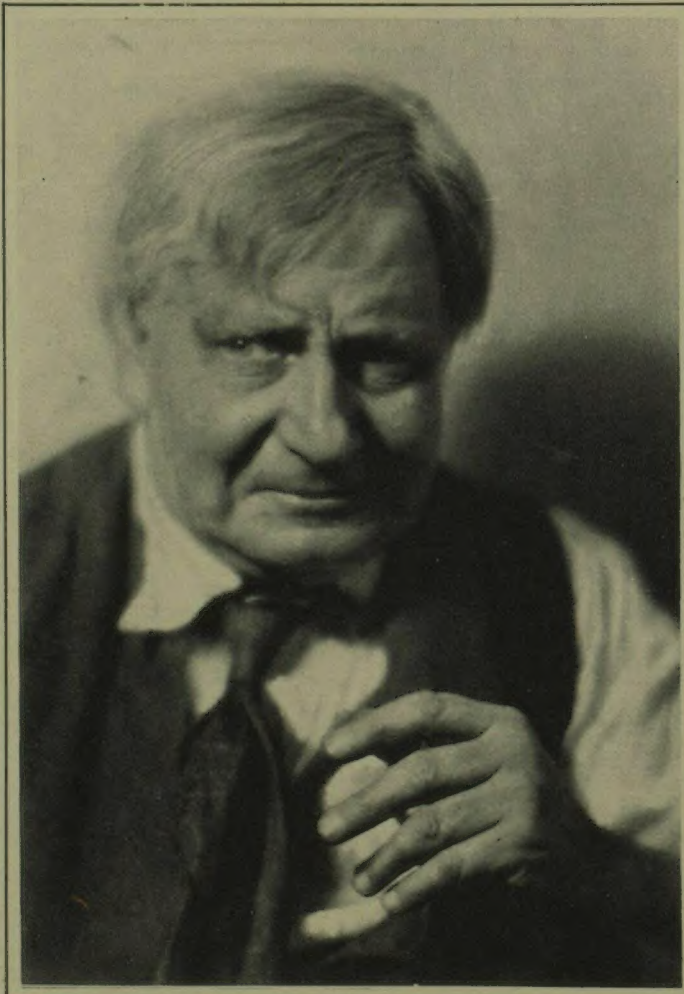
Photograph by Stage Photo. Co.

does a week pass without the personal—and sudden—advance of actors. Thus Horace Hodges, Sam Livesey, and now Ronald Squire. His part in "Spring Cleaning" is that of the wolf in sheep's clothing—alias the "compleat" cad in kernel.

Mr. Squire has played these parts before, and with conspicuous success, latterly in "Our Betters," which, with "The Vortex" and "Spring Cleaning," completes the trio of comedies depicting social decline. But never has his personality stood out in such force as in the part of that would-be lover who by sheer impudence of innate roguery makes a convert of a priggish husband and teaches him to preach less to his wife and to love her better and more considerably.

Hearing Mr. Ronald Squire as he held forth in ceaseless flow of persuasive argument with imperturbable repose, an air of mockery underneath, we thought of our never-to-be-forgotten Charles Hawtrey. Not that Ronald Squire ever imitated that great English comedian—for he is himself an original in every way—but there was a certain kinship in conception as well as of method—the extra-dry method, as I would term it. Both artists were wholly different from their surroundings; aloof, as it were, yet so completely in the picture that there was neither jar nor false note. There are such men (and women) who create an individual atmosphere. Wilde was one; Shaw is another; and George Moore and Augustus John: when they are in a crowd, two currents seem to run through the room—they impel all the others to concentrate upon them.

Thus Ronald Squire in "Spring Cleaning." When he was on the stage the others, excellent artists one and all, seemed to act; he alone was life. And yet—it may sound Irish—the others were as life-like as he, only they were the world in wholesale and he was a world himself in detail. They were all action, he all phlegm. Had one not felt the fine undercurrent of light and shade and irony, one would have taxed him with monotony. There are few other nations who could act like that. Squire's is the British manner, the hand-in-pocket, sardonic, cool-as-a-cucumber manner that is a birthright—you find it more in villages than in towns—and our public love it. It goes further with them than fervour or gesticulation. For, with Talleyrand, the English believe in such composure as means convincing power. The untranslatable *surtout pas de zèle* was the average Englishman's thought expressed by a great Frenchman.



JUDGED TO HAVE GIVEN THE BEST PIECE OF ACTING IN JANUARY, AND, THEREFORE, THE WINNER OF THE "SKETCH'S" GIFT: MR. HORACE HODGES IN "LIGHTNIN'."

As is generally known, our contemporary, the "Sketch," presents each month a gift of a silver bell in the form of "Miss Sketch" to the actor or actress deemed to have given the best performance during that month. The award for January goes to Mr. Horace Hodges, who has made a very great "hit" as the slow-moving, lovable, "Lightnin'" Bill Jones, in "Lightnin'," at the Shaftesbury Theatre. Mr. Hodges made a notable success as the Doctor in "White Cargo," and as Grumpy in the play of that name, of which he is part-author.—[Photo. Pollard Crowther, F.R.P.S.]

A "HAMLET" FROM AMERICA—AND MISS FAY COMPTON AS OPHELIA.

PHOTOGRAPHS BY SASHA.



"HE TOOK ME BY THE WRIST AND HELD ME HARD": OPHELIA (MISS FAY COMPTON) AND HAMLET (MR. JOHN BARRYMORE) REHEARSING FOR THE HAYMARKET PRODUCTION.



"YOU ARE AS GOOD AS A CHORUS, MY LORD": OPHELIA (MISS FAY COMPTON) AND HAMLET (MR. JOHN BARRYMORE) AS THEY WILL APPEAR IN "HAMLET" AT THE HAYMARKET.



"WHEREON DO YOU LOOK?" THE QUEEN OF DENMARK (MISS CONSTANCE COLLIER) AND HER SON HAMLET (MR. JOHN BARRYMORE).



"ONE FAIR DAUGHTER, AND NO MORE, THE WHICH HE LOVED PASSING WELL": OPHELIA (MISS FAY COMPTON) AS SHE WILL BE SEEN SHORTLY AT THE HAYMARKET.

London playgoers are looking forward with keen anticipation to Mr. John Barrymore's forthcoming production of "Hamlet," at the Haymarket Theatre, arranged for February 19. Mr. Barrymore himself, who belongs to a famous theatrical family, has had a great success as Hamlet in America, and his rendering of the part is awaited with great interest here. The cast is a strong one, for it includes Miss Fay Compton as Ophelia, and Miss Constance Collier as Gertrude,

Queen of Denmark, while Mr. Herbert Waring will appear as Polonius, and Mr. Malcolm Keen as the King. Among other parts allotted are those of Horatio to Mr. Laurence Anderson, Laertes to Mr. Ian Fleming, the First Gravedigger to Mr. Ben Field, and the Ghost of Hamlet's father to Mr. Courtney Thorpe. The scenery will be the work of the well-known American scene-painter, Mr. Robert Edmund Jones.

"Ging-shen" and China: Curiosities of Peace and War.

"IN THE LAND OF THE LAUGHING BUDDHA." By UPTON CLOSE.*

FULL of *ging-shen*, that "Fluid of the Gods" which we call Ambition, Upton Close was not only in the Chinese world, but as nearly of it as any "white barbarian" can hope to be. Many strange experiences were his for the seeking.

When "pity-money" was being distributed in the famine belt and villages were "eating their girls"—finding the cash for food by selling their daughters to "man-traders" coveting maid-servants and entertainers for tea-houses—he was told that typhus was rampant in Honan. A native tailor made him an "air-tight" suit of raw silk, to wear next the skin. "This material is repulsive to insects." The protection was not wanted. Had it been, it might well have ranked with the popular pill of the country—deer antlers in the velvet, duly ground, a concoction chiefly rivalled by a first cousin made of the bark of the medicine-tree of the Kansu district, a remedy so sensitive that a glance will rob it of its efficacy, and so cunning in its action that, if swallowed "unsight and unseen," it will cure anything!

On the "defiles" of the great North-West Highway, "a road worn two hundred feet below the surface of the plateau by three thousand years of continuous travel," where the loess dust is such in the dry season that the passer-by must wear a mask, he saw the Children of the Clay in their cave towns excavated in the hill-side—and had sport with black geese. "Nominally wild, they were actually so tame that they would strut between the very feet of the blue-shirted farmers as they hoed the rows. Yet the sentry geese, by sight or smell, could spot a white man with firearms while well beyond range, and it required strategy to keep the party in fresh fowl. . . . We trained the brainy Kansu ponies which we received later at Sian to charge full gallop among the surprised geese, stop dead as they lifted for flight, and stand rigid while we shot; we then retrieved the wounded from horseback, whether on land or water. . . . So keenly did my horse take to the sport that, riderless, he once pursued a stunned red goose for miles over a dried course of the Yellow River. The bird was flying low, and he finally caught it, dragged it to me in his mouth, and dropped it—when, to his surprise, it took wings and flew off, this time far out of reach."

At Sian-fu, where the Son of Heaven had his seat in a palace that is now a mound, on a corner of the crumbling walls, is a sign of China's Cleopatra, Yang-Gway-fay, beloved of the Emperor Ming-hwang—the imprint of a hand. The "Precious Consort," pliant before the plea of a poet that he might preserve her beautiful hand in stone, placed it against a boulder. "The courtier found a stylus of harder stone and traced the outline of the Empress's fingers. And for eleven hundred years all visitors to the Palace . . . have taken the privilege of placing a hand over the contour of that of the beautiful woman. Centuries of this homage have worn the impress of a human hand deep into the ancient stone. . . . Within recent years, one of the few foreigners who have visited the land of the Glory that was Cathay has seen fit to chisel out the palm of the hand and take it home. For a souvenir!"

West of Tsingning, where "the mountains walked" in 1920, is an amazing earthquake freak. "Two sections of the ancient, well-packed highway, accompanied by the tall poplar trees which bordered it, were cut from the line of road following the side hill, swept hundreds of yards over the stream-bed and set, intact, upon an angle on top of the heap of loess. The crows' nests in the trees were undisturbed."

Then there was the gambling. "Chinese ladies, going to gaming-parties, especially at New Year, and hardly daring to carry stakes in the form of obvious possessions, put on several pairs of silken pantaloons, which are played for."

Which brings us to the greatest gamble, War.

Now the Chinaman does not believe in force of arms, though he is no coward. "He is too civilised a person to fight very long when talking will do." He has been giving battle of late years chiefly because he has been led by the naturally pushful. "The old examination system allowed those afflicted with an excess of *ging-shen*, or ambition, to employ their gifts in the service of the existing system, tests being used to select civil officers, while athletic pre-eminence assured a chance in the army. The overthrow of the old order has left these impetuous spirits to carve their own fortunes out of a tempting chaos."

The result has been strange enough, melodramatically farcical to the onlookers from the West. Conceive some situations.



FOR MAKING INTO PILLS: DEER ANTLERS IN THE VELVET, ON THE GREAT NORTH-WEST HIGHWAY.

General Wu-Pei-fu sent a wire to General Chang Tso-lin: "In view of my respect for your effulgent ancestors, it began, 'and the long affection between us, it is only with tearful eyes and bleeding heart that I resign myself to the command of heaven to sally forth and eliminate you from under heaven. Make ready—I am coming.' Chang would see beneath the further courteous phrases, reminders of his ambiguous origin, his brigand career, his protection of 'leeches who had sucked their country's blood,' his 'inordinate and impossible ambitions.'"

Col. Niu—Old Ox—lusted for the fray, and, against instruction, directed a furious attack upon the enemy's outpost. "'You fool,' exclaimed Wu, 'get your

they played a tattoo like machine-gun fire. The dupes got frightened and fired on me. What could I do but reply?' The War was on. Niu was not one to 'contain his liver,' the seat of ambition.

An aged, itinerant pedlar approached a railway car holding a colonel and various majors. "The old man eyed us reprovingly. 'Seems to me like, when you want to have a war, you should give the 'old hundred surnames' (the people) fair notice, so they could get out of your way. Here, unawares, I find myself in a battlefield and get shot,' exhibiting his wound. The soldiers laughed, patted him on the back, bound up his wound, gave him a few coppers each out of their own limited belts, and sent him on his way."

Pedlars, indeed, were persistent. "At dawn Wu made for the trenches without stopping for breakfast. . . . I bought some tea, pot and all, from a ragged, barefoot peasant boy who had given up farming for this catering business.

"These temporary pedlars, with tea, cakes, cigarettes and notions, swarmed over the scene of action—even up to the front trenches. Occasional casualties did not discourage them, and it would have taken more police than there were soldiers to keep them out of the lines. They got most of the four dollar bonus which Daddy Tsao gave his troops upon their entrance into action."

As for the Christian General Feng, about whom so much has been written, Mr. Roy Chapman Andrews, of dinosaur egg fame, found that "his soldiers were amazingly disciplined. The army was a church, of which Feng was the Methodist 'Pope,' the commissioned officers were the 'priesthood,' the non-coms the deacons, and the privates the laymen. Their day was apportioned out; so much time for Bible study, so much time for calisthenics, so much for constructive labor, so much for the science of killing. Feng boasted that his army more than earned its own living. Smoking, drinking, and gambling were strictly taboo, and Feng's soldiers were as drastic with loose women as the Ku Klux Klan." To which Mr. Upton Close notes: "Feng's men. They wore squares of white cloth sewed upon their left sleeves upon which the following was printed in Chinese 'Y.M.C.A.' slang:

'THE SECRETS OF VICTORY.

'1.—Every officer must in all integrity and bravery stand ready to die for God and for country.

'2.—If somebody doesn't get killed, it's not real war—and there can be no real heroes and no real braves.

'3.—The body may die, but the gun must not leave the hand. Ammunition must not be wasted.

'4.—Go in to kill the enemy. When your ammunition is finished, use the gun-butts. When the butts are broken, use your fists. When your fists are crippled, bite 'em with your teeth!

'5.—Who is able to give his life to save a fellow thereby emulates true courage."

There is also the spectacle of the fortnight's war between Twan Chi-sui and Chang Hsun. "Two persons were killed and nine injured. Premier Twan took Peking and the pig-tailed Chang Hsun sought sanctuary in the Dutch Legation. During the course of this campaign, it is alleged, the surrender of a position was determined by a game of ma-jong played by rival subordinate commanders."

Thus might one continue; but here the reader himself must take up the book. He will find it both revealing and entertaining: the story of a country in chaos, with the students in revolt against the

old intriguers, with brigandage and soldiery alternating as often as not, with much "squeezing" of funds, with the "passive resistance strike" as keenest weapon against the Japanese, sucking in his breath in politeness, but penetrating potently; and, above all, the story of a country that will be "saved" by its people as a whole, not by individuals; a country determined not to lose Face: "*Du-dz neng wo-liao Ku-dz buh neng po-liao*"—"The stomach may be empty, but the trousers must not be torn."—E. H. G.



A QUARTER-MILE SECTION OF A ROAD, AND THE POPLARS LINING IT, CARRIED A MILE ACROSS COUNTRY BY AN EARTHQUAKE: "WHERE THE MOUNTAINS WALKED."

In the great earthquake of 1920, a poplar-edged section of road was swept on the back of a river of earth hundreds of yards over the stream, and, as here shown, set intact upon an angle on top of the heap of loess. All this in a few seconds.

Illustrations Reproduced from "In the Land of the Laughing Buddha," by Courtesy of the Author, and of the Publishers, Messrs. G. P. Putnam's Sons.

men out of here before Chang's gunners open up on them from the ridge!"

"Now," he said to Niu, after they had reached the cover of the trenches, "tell me how this started?"

"Well," gestured the Old Ox, "some of the boys wanted to find out if the Redbeards were as scary as they had heard. I told them your orders were not to shoot. So they took some Standard Oil tins and sneaked over to the enemy's post, where

* "In the Land of the Laughing Buddha: The Adventures of an American Barbarian in China." By Upton Close (Josef Washington Hall), Correspondent, Member of Explorers' Club, Lecturer on Pacific Asia at the University of Washington. Illustrated. (G. P. Putnam's Sons; 17s. 6d. net.)

RIVIERA COSTUME CONTRASTS: LACE-MAKERS AND CUSTOMERS AT NICE.

PHOTOGRAPH BY L.N.A.



MODERN FASHION AND LOCAL COSTUME IN CONTRAST AT NICE: LACE-MAKERS IN THEIR PICTURESQUE MITRE-LIKE CAPS AT WORK AND DISPLAYING THEIR WARES TO VISITORS ON THE SUNLIT PROMENADE IN THE "CAPITAL" OF THE RIVIERA.

Our photograph shows a picturesque contrast in feminine costume, between that of the native and the visitor, on the front at Nice, where, as on the Riviera generally, the season is now at its height. The lace-makers of the town, wearing their mitre-shaped caps, sit at work on the front, and display their wares for sale in a basket or hung over chairs. Weather reports from Nice the other day

gave the temperature as 86 Fahrenheit in the sun, and 61 in the shade. Among notable festivities there recently was the "Versailles" gala dinner, attended by over 600 guests, with entertainments including a ballet of dancers attired as Greek nymphs, and a four-year-old Bacchus. The Promenade des Anglais, at Nice, with its line of palm trees, is, of course, a great resort of Society.

"TERAPHIM" AS USED BY ABRAHAM; AND OTHER FINDS AT UR.

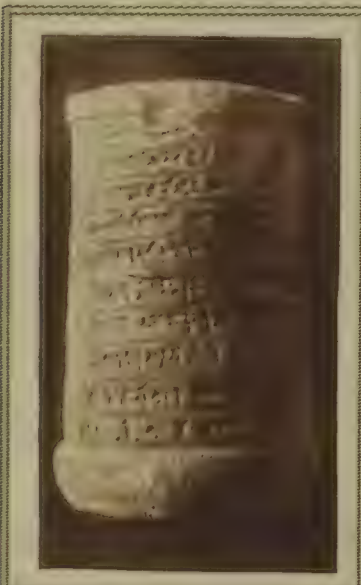
PHOTOGRAPHS BY COURTESY OF MR. C. LEONARD WOOLLEY, DIRECTOR OF THE JOINT EXPEDITION OF THE BRITISH MUSEUM AND THE UNIVERSITY OF PENNSYLVANIA MUSEUM TO MESOPOTAMIA.



"THE KIND OF 'TERAPHIM' THAT ABRAHAM CARRIED": TERRA-COTTA FIGURINES AND MASKS (PROBABLY CHARMS AGAINST WINDS THAT BRING SICKNESS) FOUND AT UR.



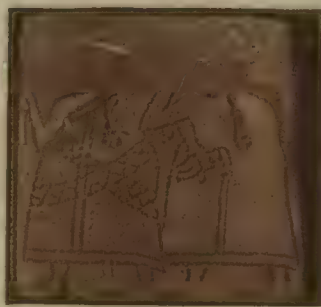
EGYPTIAN IN STYLE, AND DECORATED WITH FIGURES IN RELIEF FORMING A "CHAIN": FRAGMENTS OF AN IVORY CASKET FROM THE CLOISTER OF NABONIDUS AT UR.



ARCHAEOLOGY 2500 YEARS AGO! A CLAY PEDESTAL (7TH CENT. B.C.) RECORDING EXCAVATIONS AT UR, WITH INSCRIPTIONS THEN COPIED.

THESE interesting photographs illustrate the latest results of the remarkable discoveries at Ur of the Chaldees (Abraham's native city) by the joint expedition from the British Museum and the Museum of the University of Pennsylvania. Earlier stages of the work were dealt with in our issues of February 2, 1924, and March 17 and April 21, 1923. In an article despatched to us from Ur last month, Mr. C. Leonard Woolley, who is directing the excavations, writes: "The two months (i.e., of this season) during which we have been at work at Ur have yielded much of interest. Digging to the north-west of the great Ziggurat tower (described and illustrated in colour in 'The

[Continued in next Box.]



"THE PRETTIEST OBJECT" FOUND: A SHELL PLAQUE, WITH FIGURES, EARLIER THAN 3000 B.C.

Illustrated London News' of October 25 last), we have found the limits of the terrace on which the whole structure was built. This takes the form of a heavy wall of crude brick, steeply sloped and relieved by shallow buttresses. What was really sensational in a discovery which may perhaps sound rather dull was that in the wall face, at regular intervals, there were to be seen the rounded heads of nail-shaped clay cones whose stems, stuck into the joints of the brick-work, bore the name and titles of King Ur-Engur, who reigned about 2300 B.C., and was the original builder of the Ziggurat. On the top of his terrace we could trace in successive strata the ruins of the various

[Continued below.]



INSCRIBED WITH TITLE-DEEDS AND CURSES BY GODS, SYMBOLISED ABOVE, ON ANYONE WHO DESTROYS IT: A BOUNDARY STONE



INSCRIBED WITH THE NAME OF KING UR-ENGUR (2300 B.C.): TWO DOOR-SOCKETS FROM THE HOUSE OF THE MOON GOD, WITH THE COPPER SHOE (SIMILARLY INSCRIBED) OF THE HINGE-POLE STILL RESTING ON ONE (LEFT).



WITH FIGURINES OF DOGS, IN BRONZE, BURIED UNDER THE FLOOR NEAR THE DOOR TO GUARD THE HOUSE: PARTS OF THE CLOISTER FOUNDATION DEPOSIT, INCLUDING A BRONZE DAGGER AND ARROW-HEADS (SOME OF STONE).

[Continued.]

shrines of the Moon God put up by different kings throughout Babylonian history, and in front of it the additions built out by Ur-Engur's successors. One refaced the terrace with burnt brick, and one threw out a fort with steps descending to a sally-port. The late Babylonians, Nebuchadnezzar and Nabonidus, surrounded the whole with a quadrangle of double walls enclosing a broad courtyard, which obliterated altogether the old terrace level and the buildings on it, and put towers of defence at its four corners. The fortress gave us the most dramatic discovery, for here, embedded in the heart of the walls, we found undisturbed the foundation-cones of Warad-Sin, who about 2070 B.C., was king of the city of Larsa and

overlord of Ur; and the filling of the early terrace gave us the 'prettiest object'—a little shell plaque (here illustrated), engraved with two figures, a rare example of an art more than five thousand years old. South-east of the Ziggurat an unpromising-looking mound has amply rewarded us; for it concealed the remains of one of the most important buildings of Ur. Originally a gate-tower leading to the Ziggurat terrace—a gate adorned, probably, with a great statue of the Moon God—it owed its foundation to Bur-Sin, King of the Third Dynasty of Ur (B.C. 2224). Since of old the judges 'sat in the gate' to give judgment, the tower evidently became at first in part, and at last wholly a Hall of Justice.

[Continued in Boxes on opposite page.]

WHERE BELSHAZZAR'S SISTER RULED A CONVENT: DISCOVERIES AT UR.

PHOTOGRAPHS BY COURTESY OF MR. C. LEONARD WOOLLEY, DIRECTOR OF THE JOINT EXPEDITION OF THE BRITISH MUSEUM AND THE UNIVERSITY OF PENNSYLVANIA MUSEUM TO MESOPOTAMIA.



GRINDING CORN WITH A QUERN AND RUBBING-STONE USED 2500 YEARS AGO: A NATIVE LABOURER IN A KITCHEN OF THE CONVENT (SIXTH CENTURY B.C.) "RUN ON MODERN LINES," WITH A SCHOOL AND "MUSEUM."



WITH CLAY CONES PROJECTING FROM ITS FACE (RIGHT FOREGROUND) INSCRIBED WITH THE NAME OF KING UR-ENGUR (2300 B.C.): HIS MUD-BRICK WALL SUPPORTING THE TERRACE ON WHICH STANDS THE ZIGGURAT.

Continued.]

Ishme-Dagan of Larsa, Kuri-Galzu, the Kassite king of Babylon, and in the seventh century B.C. the Assyrian governor of the city, all, in turn, restored it, and the last, by name Sinbalatsu-ikbi, has left, inscribed on a beautiful green stone door-socket in the shape of a snake, an elaborate account of his pious labours. A century later Nabonidus remodelled the place, and turned the old gateway into the central shrine of a convent, which he built under the shadow [of the Ziggurat], and installed in it as Mother Superior his own daughter, Bel-Shalti-Nannar, the sister of the ill-fated Belshazzar. Judging from the objects found in the ruins, the house was run on very modern lines, for there was a school on the premises and, apparently,

[Continued opposite.]



SHOWING THE ZIGGURAT IN THE BACKGROUND: THE GREAT GATEWAY, BUILT BY KURIGALZU, AND EMBODIED BY NABONIDUS IN HIS CONVENT—SHOWING ALSO (IN FOREGROUND) EXCAVATIONS IN THE CONVENT COURTYARD.

Continued.]

also a small museum, objects from which, belonging to very different periods, will now enrich museums in lands of which Bel-Shalti-Nannar never dreamed." Mr. Woolley gives various further details in another report supplied to us through the British Museum, and containing a reference to the discovery of ancient fingerprints, which is of great interest in connection with Sir Charles Walston's article on that subject in our last number. "Our other site," writes Mr. Woolley, "has been the Hall of Justice called E-dublal-makh, and here . . . we have worked out the history of the building . . . back to its original foundation by Bur-Sin of Ur about 2250 B.C.; and even below the walls of Bur-Sin we have come upon

[Continued below.]



LYING IN POSITION IN THE WALL AS THEY WERE PLACED BY THE BUILDERS 4000 YEARS AGO: FOUNDATION-CONES OF WARAD-SIN, KING OF LARSA AND OVERLORD OF UR (ABOUT 2073 B.C.).



THE "REALLY SENSATIONAL" PART OF THE DISCOVERY OF UR-ENGUR'S WALL SUPPORTING THE ZIGGURAT TERRACE AT UR: NAIL-SHAPED CLAY CONES, PROJECTING AT INTERVALS, INSCRIBED WITH THAT KING'S NAME.

Continued.]

brick-work of a more primitive sort, bearing no name, but marked with two finger-prints deeply impressed to hold the mortar, a record of the shadowy kings of the Second Dynasty of Ur, who may have reigned some two thousand eight hundred years before Christ." Of the convent built by Nabonidus for his daughter, high-priestess of the Moon God, Mr. Woolley says: "He lays down the most admirable moral precepts for her guidance. Now, in front of the E-dublal-makh, we find a wide courtyard, the bricks of whose pavements bear, together with the name of Nabonidus, the description of the building as 'The House of the Priestess.' . . . The school materials, writing exercises, etc., seemed to show

that the religious houses then, as now, had their educational side; and the daughter of Nabonidus, himself a well-known antiquary, appears to have kept a museum. . . . Most curious of all, was a record on clay of excavations carried out at Ur in the seventh century B.C., with copies of early inscriptions found in the course of the work. These copies were made 'for the admiration of the people,' and I can now feel that not only in digging here, but also in making public the results of the dig, I am following a local precedent set two thousand five hundred years ago." The clay pedestal recording these excavations made 2500 years ago is illustrated on the opposite page.

BOOKS OF THE DAY.

By J. D. SYMON.

THE approach to a new book is a thing of infinite variety. No one who has more or less flirted with letters for the best part of his lifetime but has accumulated a little store of odd, out-of-the-way associations which the appearance of this or that new book will drag from their shelf in the subconscious. "What"—we ask ourselves with a thrill—"what has the author to say about this or that?" The point may be trivial, but the sport is none the less inviting and now and then revealing.

Two questions on side issues obsessed me when I took up "THE LIFE AND LETTERS OF GEORGE WYNDHAM"; by J. W. Mackail and Guy Wyndham (Hutchinson, 2 vols.; 42s.). One was born of a great curiosity to see what the biographers might have to say about Wyndham's Introduction to Francis Thompson's Essay on Shelley: the other of hope that some record might be preserved of his exquisite speech to the Omar Khayyam Club. On both counts the draw was, in a sense, blank. The biographers' brief reference makes no attempt to evaluate the Introduction to the "Shelley." Nor does it find a place in the formal Wyndham biography, for the very good and sufficient reason that strictly it was not a separate work, but a letter, or rather the portion of a letter, addressed to Mr. Wilfrid Ward, editor of the *Dublin Review*.

The letter, however, appears in its proper chronological place in Volume II: better still, it is now printed in full. Not that Mr. Wilfrid Meynell, in preparing the letter for his edition of the "Shelley," omitted anything essential, but it is gratifying to see these notes exactly as George Wyndham, achieving fine criticism amid the graceful and perhaps unstudied ease of familiar correspondence, threw them off. It is good, also, to recover one omitted phrase in a passage not suitable for general use in the edition. Speaking with direct reference to the *Dublin Review* of July 1908, in which Thompson's posthumous essay appeared, Wyndham says to Mr. Ward: "I am glad that you display this 'captain jewel' in a good 'carcanet.'" In a final paragraph, too, he threw into bold assertion the implications of his previous remarks, and, reverting to Myers and Thompson as essayists, "put Thompson first."

My other point of private curiosity, that about the memorable speech on Omar Khayyam, found only negative, but still interesting, satisfaction. Of that masterly piece of eloquence and rich literary allusion, there is no record in the "Life," but the "Letters" proved indirectly more fruitful. Referring to my collection of programmes, I see that George Wyndham was the guest of the Club on the evening of May 4, 1906. In a letter dated May 13, he wrote to his mother: "I should like to 'come to old Khayyam and leave the wise to talk' if—as I said to C. G. Gould—it is the wise who talk." I always doubt that after speaking myself. Obviously, "C. G. Gould" should be "F. C. G.", for the late Sir Francis Carruthers Gould presided at the dinner, and here without doubt this letter preserves some echo of the good table-talk exchanged by the Chairman and his Guest of Honour.

The writers of George Wyndham's biography have practised a self-denying economy in the purely narrative part of their work, and have compressed the story of a meteoric career—a life too brief, but lived intensely in every moment—into 127 pages. For the fuller exposition of a marvellous character they have relied (and rightly) on Wyndham's letters, which occupy three-quarters of the first and (appendices excepted) the whole of the second volume. In his correspondence Wyndham stands revealed in versatility and charm as perhaps no letter-writer has revealed himself since Byron. Sportsman, soldier, statesman, man of letters, student free from academic fetters, darling of society, good son, devoted lover, husband and father, loyal brother and steadfast friend, this last of the romantics looks out from these pages in his habit as he lived—a radiant and gracious figure.

Wyndham took up the burdens and vexations of office gallantly, from a hereditary sense of duty, although "his heart was elsewhere." For his desire was towards letters. There, recognising his limitations—his proneness to be diffuse—he strove diligently after his ideal in literary expression, and with greater leisure he would have achieved it, at least in prose. He has left only a handful of writings, but one or two are candidates for immortality—his essay on Scott, and, in particular, his Introduction to North's *Plutarch*. In the last he purged away the dilettante by assiduous thoroughness and yet retained his lightness of touch. It is like to be reckoned his masterpiece. As a study in spiritual development, the broadening, deepening, and strengthening of a soul initially too subtle and

mercurial for the harsher hazards of the political game, but playing that game with sportsmanlike cheerfulness through good and ill report, and still faithful to the ideal, these volumes stand apart in British Biography, just as Wyndham himself was a personality unique in British life. In its minor details the "Life and Letters" affords delightfully humorous sidelights on society and the works and days of the public offices in the late Victorian and Edwardian period.

Society and the public office of an earlier time find another most agreeable reflection in a very valuable little book, which extracts with scholarly insight and selection the quintessence of the Prince of Diarists and self-revealers. It was a work well worth undertaking, for, although Mr. Pepys at first hand can never be superseded, he is so voluminous and diffuse that, unless one has time and patience to follow out in detail his manifold scattered illustrations of his character and times in specific aspects, one is apt to miss their co-ordination.

Here at last, however, in "MR. PEPYS, AN INTRODUCTION TO THE DIARY, TOGETHER WITH A SHORT SKETCH OF HIS LATER LIFE," Dr. J. H. Tanner has brought together the passages illustrating "The Clerk of the Acts," "Mrs. Pepys," "The Family," "Neighbours and Friends," "Food and Clothes" and the diarist's pursuits, interests,

them a very close second. From America comes the reprint of a curious and interesting work, "THE MEMOIRS OF STEPHEN BURROUGHS" (Cape; 12s. 6d.). This, the story of an adventurer who saw life in many chequered phases, is sure of an audience, and I would heartily recommend it, especially to those readers who are now finding in stories of real life that pleasure which formerly they sought in fiction. This does not mean that the novel is played out finally, but it may indicate that at the moment fiction is harping rather persistently on one or two strings, such as the psychic and the sexual, or both combined—the last case not uncommon. Neither theme is illegitimate, but there is such a proverb as *toujours perdrix*, and our novelists, even the best of them, might be none the worse to remember it.

Burroughs was a most extraordinary character—a rogue of the thorough-paced order, and a plausible rogue at that; the type that has inspired fiction since Cervantes told the story of "Riconete and Cortadillo" in the Exemplary Novels; the same type that, in actual confession, has made Benvenuto Cellini and Casanova as immortal as they are engaging. Stephen Burroughs is among the writers of confessions, for his work is autobiographical, and, if it may not be all that the editor claims for it, the writing is certainly good, graphic, and entertaining. These Memoirs appeared first in 1798, and had

considerable vogue in America, but have long lain forgotten. The present reprint is from the edition of 1811. They were worth reviving, but one doubts if the widest popularity awaits them, for the narrator fails somewhat in that candour which is the first recommendation of the great rascals who tell their own story. They make no bones about admitting their rogueries. Burroughs usually is content to state the accusations made against him, without actually committing himself. At times he may have been traduced, but the reader is left with the impression that where there is smoke there must be fire.

This preacher's son of New Hampshire began life with everything in his favour. But he was a restless lad. Twice, when he was only fourteen, he joined the Revolutionary forces, but, at his father's request, was discharged by Washington. For a time he studied at Dartmouth College, and then, stealing a bundle of his father's sermons, he went about as a bogus clergyman, imposing upon congregations. At a pinch, he could preach an able enough original sermon—he quotes one unblushing example. A coin-ing escapade brought him into a convict prison, and his attempts to escape place him with Baron Trenck, Monte Cristo, and the notable company of gaol-breakers. He suffered terrible punishments in the flesh, but had amazing powers of getting the better of hard usage, of the law and of his enemies, and finally he seems to have made a quiet and respectable end as a farmer and mill-manager in Lower Canada. The book is of some value as a reflection of social life in America towards the close of the eighteenth century. It is also a lively contribution to the literature of the Eternal Scamp.

Among lighter reflections of present-day society, varied with glimpses of the past, the new books offer us a collection of brief, amusing essays by that pleasant occasional writer who signs himself "The Old Stager." His contributions to the periodical Press bear reprinting far better than the usual run of such *jeux d'esprit*, and "A LONDONER'S CALENDAR" (Chapman and Hall; 7s. 6d.) is sure of a welcome not only from those who have already read these little homilies and sketches in the evening and other journals, but also from those who now make their acquaintance for the first time. The Old Stager is a society man of wit and wisdom who knows his world, and presents his impressions of its *va-et-vient* month by month from January to December. Being a man of some leisure, he can break the bounds of the metropolitan prison at the appropriate seasons—in April the meadows and the country house call him; in autumn he worships St. Grouse in Scotland.

For every season, every routine function of the *beau monde*, he has his note, his shrewd aphorism. He is also a man of books and a genial worldly moralist. Fond of the old times, he is yet in sympathy with the new, and in the light of progress he defines a gentleman. "To-day the most gentlemanly action a man can accomplish is to get himself a job. A tradesman, it is recognised to-day, may have the soul of a Bayard, the mind of a poet, the manners of a Chesterfield." The Old Stager is a man to know; if we may not meet him in the flesh, there is always his most enticing little book to make the desirable introduction. Here, again, is an author who reveals himself charmingly, yet without obtrusive egotism.

Glory be to God on high, Peace on Earth, Good will among men.

A Rare and New

DISCOVERY

OF

A speedy way, and easie means, found out by a young Lady in England, she having made full proof thereof in May, Anno 1652.

For the feeding of Silk-worms in the Woods, on the Mulberry-Trees in Virginia: Who after fourty dayes time present there most rich golden-coloured silken fleece, to the instant wonderful enriching of all the Planters there, requiring from them not here 10. Libras, or 10. s. but 1. s. 10. of their other employments.

And also to the good hopes that the Indians, Seeing and finding that there is neither Art, Skill or Pains in the thing: they will readily set upon it, being by the benefit thereof enabled to buy of the English (in way of Truck for their Silk-bottomes) all those things that they most desire.

So that not only their Civilizing will follow, thereupon, but by the infinite mercie of God, their Conversion to the Christian Faith, the Glory of our Nation, which is the daily humble prayer

OF

VIRGINIA for VIRGINIA.

With two Propositions tending to England's and the Colonies infinite advantage.

Printed for Richard Woddeside in Leaden-hall Street, 1652.

AN "EXCEEDINGLY RARE" ITEM IN THE NEXT SALE OF BOOKS FROM THE BRITWELL LIBRARY: A SEVENTEENTH-CENTURY WORK ON SILKWORMS DESIGNED TO ENRICH VIRGINIAN PLANTERS AND CIVILISE THE INDIANS (FIRST EDITION—TITLE-PAGE AND FRONTISPIECE).

The further portion of the famous Library formerly at Britwell Court, Burnham, Bucks, the property of Mr. S. R. Christie-Miller, to be sold at Sotheby's on March 30 and 31 and April 1, 2, and 3, comprises early English works on the arts and sciences. The book here illustrated, which is among the lots to be offered on April 1, is a first edition dated 1652, and is described in the catalogue as "exceedingly rare." The author's name is given as Samuel Hartlib, and the subject is fully set out in the above reproduction of the title-page. The frontispiece shows an Indian jay on an ear of Indian wheat. The book is bound in half-green morocco, and contains a folding engraved map of Virginia.

By Courtesy of Messrs. Sotheby and Co.

and recreations, such as "Books," "Music," "Plays," "Sermons," and other accessories to the Pepysian picture. Some slight attempt at this classification and focussing was made in the tiny volume of Pepys extracts in the Bibelos Series, but thoroughness, system, and learned annotation were necessarily lacking to that pleasant little bric-à-brac volume. These elements Dr. Tanner has now supplied in a book that forms an indispensable companion to the Diary. Most admirable are the new particulars of Pepys's later years.

An American view of Samuel Pepys was published last autumn, and now the author, Mr. Gamaliel Bradford, has given us further studies in the self-revelation of eminent writers. His new volume, "BARE SOULS" (Cape; 12s. 6d.), is an experiment in literary denudation and distillation. Mr. Bradford sets out to show how certain "splendid masters of words"—Voltaire, Gray, Horace Walpole, Cowper, Lamb, Keats, Flaubert, and Edward Fitzgerald—"have used words mainly to lay bare the inmost secrets not of their own souls only, but of yours and mine and everyone's." He holds that "the impressions of common humanity in all these great letter-writers must far outweigh any sense of eccentricity or exception." For real revelation letters surpass "works," in Mr. Bradford's opinion. These are not exactly discoveries, but no one will be likely to dispute the statements. The shadow of the obvious broods over all Mr. Bradford's inferences and conclusions. Although he delves vigorously in his characters his panting toil uncovers nothing of startling originality, and his best remark perhaps is that Horace Walpole had little enough soul to lay bare. At the same time he writes interesting biographical sketches on familiar lines, and the reader will not waste altogether the time he spends at the feet of this Transatlantic Gamaliel.

Letters, it may be granted, are the best apocalypse of character, but certain kinds of autobiography run

LIKE THAT WHICH ENTOMBED MR. COLLINS: AMERICAN CAVERNS.

PHOTOGRAPHS BY TOPICAL AND P. AND A.



SUGGESTING THE TERRIBLE PREDICAMENT OF MR. FLOYD COLLINS IN THE KENTUCKY CAVES: AN EXPLORER CRAWLING THROUGH A NARROW GALLERY IN A CAVERN AT NEW MARKET, VIRGINIA.



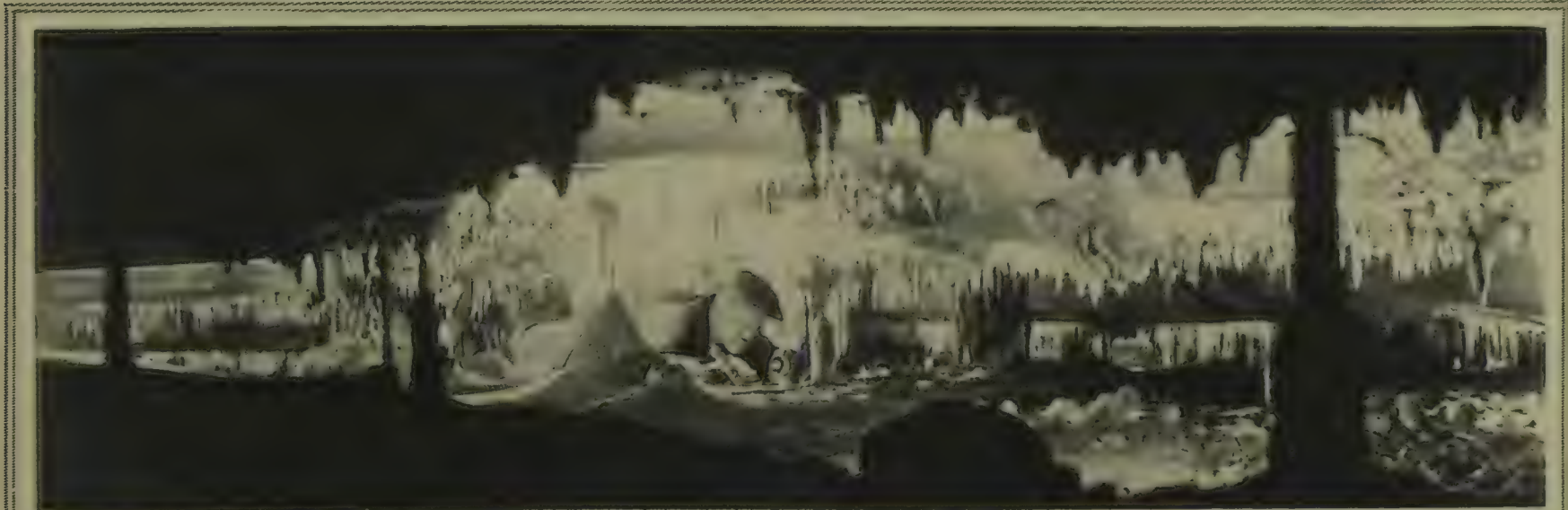
ROPED TO EXPLORE THE NEW MARKET CAVES: (L. TO R.) MESSRS. CHESTER A. REEDS, GEORGE K. CHERRIE, CARVETH WELLS (A LONDONER), AND HARRY COLLINS WALSH.



ROCK-CLIMBING IN THE BOWELS OF THE EARTH: MR. CARVETH WELLS (ABOVE), OF LONDON, AND DR. CHESTER REEDS, OF NEW YORK, IN THE NEW MARKET CAVES, UNDER A SMOKE-CLOUD FROM FLARES.



WEDGED IN A NICHE TO EXAMINE BEAR TRACKS WHICH SHE DISCOVERED IN THE NEW MARKET CAVES: MISS BETTY LARRIMORE, OF WASHINGTON, A JOURNALIST AND THE FIRST WOMAN MEMBER OF THE EXPLORERS' CLUB, NEW YORK.



TYPICAL OF THE CONDITIONS IN WHICH MR. FLOYD COLLINS WAS RECENTLY PINNED DOWN AND WALLED IN BY MOVING ROCKS IN THE KENTUCKY CAVES: A NARROW PASSAGE IN THE NEW MARKET CAVES, VIRGINIA, BEING EXPLORED BY DR. CHESTER A. REEDS, ASSOCIATE CURATOR OF INVERTEBRATE PALÆONTOLOGY AT THE AMERICAN MUSEUM OF NATURAL HISTORY.

These photographs, though taken in a different cavern in another part of the United States, illustrate vividly the perils and adventures of subterranean exploration, of which a tragic example occurred recently in the great caves of Kentucky. Mr. Floyd Collins, a young and popular guide, on January 30 ventured to explore alone a hitherto unpenetrated portion of the caves, in order to open it up for tourists. While he was crawling out through a low and narrow passage, a rock fell on his legs and pinned him down, at a point 150 ft. from the cave's entrance. Water was trickling on his head. His cries eventually brought helpers, but, though they could talk with him and pass things to him,

it was found impossible to pull him out. A shifting of the rock released his legs, but it was followed by a further movement which walled him in entirely within a space measuring about 20 ft. long by 3 ft. wide and 3 ft. deep. The rescuers then decided to sink a shaft 75 ft. deep from the hill-side above. A large gang of men set to work, but the task took several days to complete. It was reported on February 8 that Mr. Collins was still alive, though desperately ill. North America contains some of the most wonderful caverns in the world, such as the vast Carlsbad Cave, in New Mexico, whose giant stalagmites were illustrated in our issue of March 22 last.

THE FIRST COLLECTION OF ANTIQUE MICROSCOPES EVER

PHOTOGRAPHS BY COURTESY OF MESSRS. STEVENS.



DATING FROM ABOUT 1675, VERY RARE, AND PROBABLY UNIQUE: AN ORIGINAL MODIFICATION OF ROBERT HOOKE'S MICROSCOPE, COVERED IN DARK CRIMSON LEATHER WITH GOLD STAMPING.



PROBABLY UNIQUE: AN INTERESTING FORM OF SOLAR MICROSCOPE, WITH AN ALLEGORICAL FIGURE SUPPORTING THE BODY TUBE BY UPLIFTED ARMS WITH PROJECTION FOR ROTATING THE MIRROR.



ONE OF ONLY TWO SUCH EXAMPLES KNOWN: A COMBINED LUCERNAL AND COMPOUND MICROSCOPE WITH BODY TUBE (24 IN. LONG) INSCRIBED "ADAMS, INVENTOR, LONDON."



MADE BY JOHN MARSHALL, IN LUDGATE STREET, LONDON, ABOUT 1704: AN EARLY ENGLISH MICROSCOPE.



ONE OF ONLY TWO KNOWN SOLID SILVER MICROSCOPES (LEFT), BY GEORGE LINDSAY, WATCHMAKER TO GEORGE II., THE FIRST MICROSCOPE EVER PATENTED (1742); AND (RIGHT) MUSSCHENBROEK'S SECOND FORM (1702).



AN EARLY MUSEUM MICROSCOPE (LEFT) BY T. WINTER, WITH IVORY WHEEL TO HOLD 51 OBJECTS; A SMALL CAMERA-OBSCURA MICROSCOPE (CENTRE) BY CHEVALIER; AND A VIAL MICROSCOPE (RIGHT) WITH MOUNTED MAGNIFYING GLASS.

CATALOGUED FOR SALE: SIR FRANK CRISP'S HOBBY.

38, KING STREET, COVENT GARDEN. (SEE ARTICLE ON PAGE 252.)



WITH A COMPLICATED MICROMETER STAGE INSCRIBED "D. JOANNES DE GUEVARE, FECIT 1752": A MICROSCOPE WITH BODY OF TORTOISE-SHELL AND IVORY.



DATING FROM 1665: A FULL-SIZE COPY OF ROBERT HOOKE'S COMPOUND MICROSCOPE, DESCRIBED IN HIS "MICROGRAPHIA."



AN EARLY ITALIAN MICROSCOPE (LEFT) FROM VENICE: A 1750 GERMAN DISSECTING MICROSCOPE (CENTRE) WITH BRASS HOOKS FOR THE OBJECTS; AND A BOX FORM (RIGHT) PROBABLY FRENCH WITH OHMOLU MOUNTS.



LIKE A GUN: A MASSIVE MICROSCOPE OF UNIQUE DESIGN, BY KLEMAN, OF AMSTERDAM, WITH BODY 24 IN. LONG AND FIELD LENS NEARLY 5 IN. ACROSS, AND FITTED WITH A SOLAR ATTACHMENT.



SIGNED "MADE BY GEORGE ADAMS, MATH: INST. MAKER TO HIS ROYAL HIGHNESS THE PRINCE OF WALES": AN IMPROVED FORM OF THE SAME MAKER'S UNIVERSAL MICROSCOPE OF 1746.



ONCE BELONGING TO THE LEARNED BENEDICT XIV. (POPE, 1740-1758): A HISTORIC MICROSCOPE ON A BEAUTIFUL INLAID MARQUETRY BOX BASE BEARING THE PAPAL SHIELD WITH MITRE AND CROSS KEYS.

We illustrate here some of the rarest and most interesting examples in the Crisp collection of early microscopes to be sold by Messrs. Stevens at their auction rooms on February 17. An article on the subject, by Mr. Hugh B. C. Pollard, F.R.M.S., appears on page 252 in this number. The preface to the sale catalogue says: "This being the first occasion on which a collection of antique microscopes has ever been catalogued for sale by public auction, it may not be altogether out of place to give a short account of the Crisp Collection. In its entirety it consisted of nearly 3000 microscopes and over 1000 pieces of apparatus. When that part of the collection consisting of the modern microscopes was sold in these rooms in a series of sales during the years 1920 and 1921, the earlier and rarer microscopes now about to be offered were reserved for this final sale. The collection was formed during the latter half of the nine-

teenth century by the late Sir Frank Crisp, Baronet, who for many years devoted himself to the study of their history and development. He was universally recognized as the leading authority, and all the important finds were brought under his notice during that period. He was able to obtain many rare and interesting forms that it would be now impossible to duplicate." Sir Frank Crisp, LL.B., who was knighted in 1907 and made a Baronet in 1913, was born in 1843, and was senior partner in the well-known firm of solicitors, Messrs. Ashurst, Morris, Crisp and Co., and a J.P. for Oxfordshire. He was Hon. Secretary to the Royal Microscopical Society from 1878 to 1889, and Hon. Treasurer and Vice-President of the Linnæan Society of London from 1881 to 1906. On his death, in 1919, he was succeeded by his son, the present Baronet, Sir Frank Morris Crisp.

THE EVOLUTION OF THE MICROSCOPE.

By HUGH B. C. POLLARD, F.R.M.S. (See Pages 250-251.)

THE microscope is the most important weapon in all the armoury of instruments the scientist can command. The scientific study of infinitely small things has led to most of the great discoveries in the glorious chronicle of science. The biologist, the physicist, the chemist, and the engineer daily use the microscope as the most valuable of all the tools available for the scientific worker. A century ago the microscope was purely a "philosophical instrument." To-day a battery of microscopes is employed in almost every branch of ordinary commercial research. Health, food, textiles, metallurgy, agriculture—whatever it may be, wherever it may be, there you will find a scientific worker—and a microscope.

The first microscope was the simple lens, or magnifying glass. A clear glass globe of water, a crystal ball, a polished gem—all these forms of simple magnifiers were known to the ancients, but it is doubtful whether they ever had a true lens or any appreciation of the principles, and it seems unlikely that they were used other than as burning-glasses. Roger Bacon is said to have built a microscope in the thirteenth century, but so far modern research has not been able to find any authentic record of a microscope before 1590, when a Dutch spectacle-maker, Zacharias Hansen, produced a microscope with a convex object lens and a concave eye lens. This was the first known compound microscope, but it is much more closely allied to the contemporary "Galilean" telescope than the true compound microscope in which both object and eye lenses are convex.

The true birth of the compound microscope belongs to that wonderful period of intellectual activity which accompanied the restoration of Charles II. and the birth of the Royal Society. The celebrated Dr. Hooke published in 1665 a work called "Micrographia," containing a description of his instrument. This was a compound one with three lenses—a small object glass, a removable field or middle lens, and an eye lens. The body was modelled on the draw-out telescope, and was fitted with focussing adjustment along a pillar which had a ball-and-socket joint to admit of inclination in all directions. The Hooke type of instrument in the Crisp Collection (see top left-hand photograph on our double-page) lacks only this ball-and-socket movement, but is otherwise true to type. Hooke also was the first to use an external plano-convex lens as a condenser for the light-rays.

Hooke's compound microscope was in advance of the time, for it was superseded by a return to the earlier principle of the simple or single lens. This was due to Leeuwenhoek, 1673, who succeeded in making a number of very efficient simple microscopes consisting of convex lenses set between opposing pinholes in a pair of silver plates. These microscopes had no stand, but were simply fitted with a short handle like a magnifying glass. The object was placed on a movable hook or a pin set in the focus of the lens and attached to the plate. Separate instruments were needed for different powers of magnification.

There are many variations of the mounting of the simple microscope. The handle was discarded, to be replaced by a stand, as in the beautiful little silver microscope by George Lindsay, 1742. The commoner

form was the Wilson type, in which a lens was arranged in an externally threaded cylinder which could be screwed up and down in a small tripod stand. The movable mirror was introduced so that objects could be viewed by transmitted light, and refinements for focussing were attempted.

The compound microscope, after temporary obscurity by the simple type, came again into favour. It was necessarily far more expensive, for, although in 1742 a good Benjamin Martin pocket compound microscope could be bought for £2 12s. 6d., the big instruments, such as the

There was little general advance in the optical system; but the mechanical refinements show continuous progress, and the craftsmanship of many of the mid-eighteenth century pieces is extremely beautiful. The ornate scrollwork in brass, the use of ivory and shagreen, may seem strange to the eye accustomed to the nickel and black lacquer of our modern equipment, but it was in its time a fitting accompaniment to an instrument made not for laboratory use, but for the pleasure and study of "natural philosophers" and men of leisure interested in knowledge. We may glory in the perfection of our modern work, but we cannot help regretting the passing of an age which made a microscope an artist-craftsman's triumph in chiselled silver. The Adams microscope is perhaps the last landmark of the old eighteenth-century harmony between the sciences and the arts before we reach the utilitarian nineteenth century.

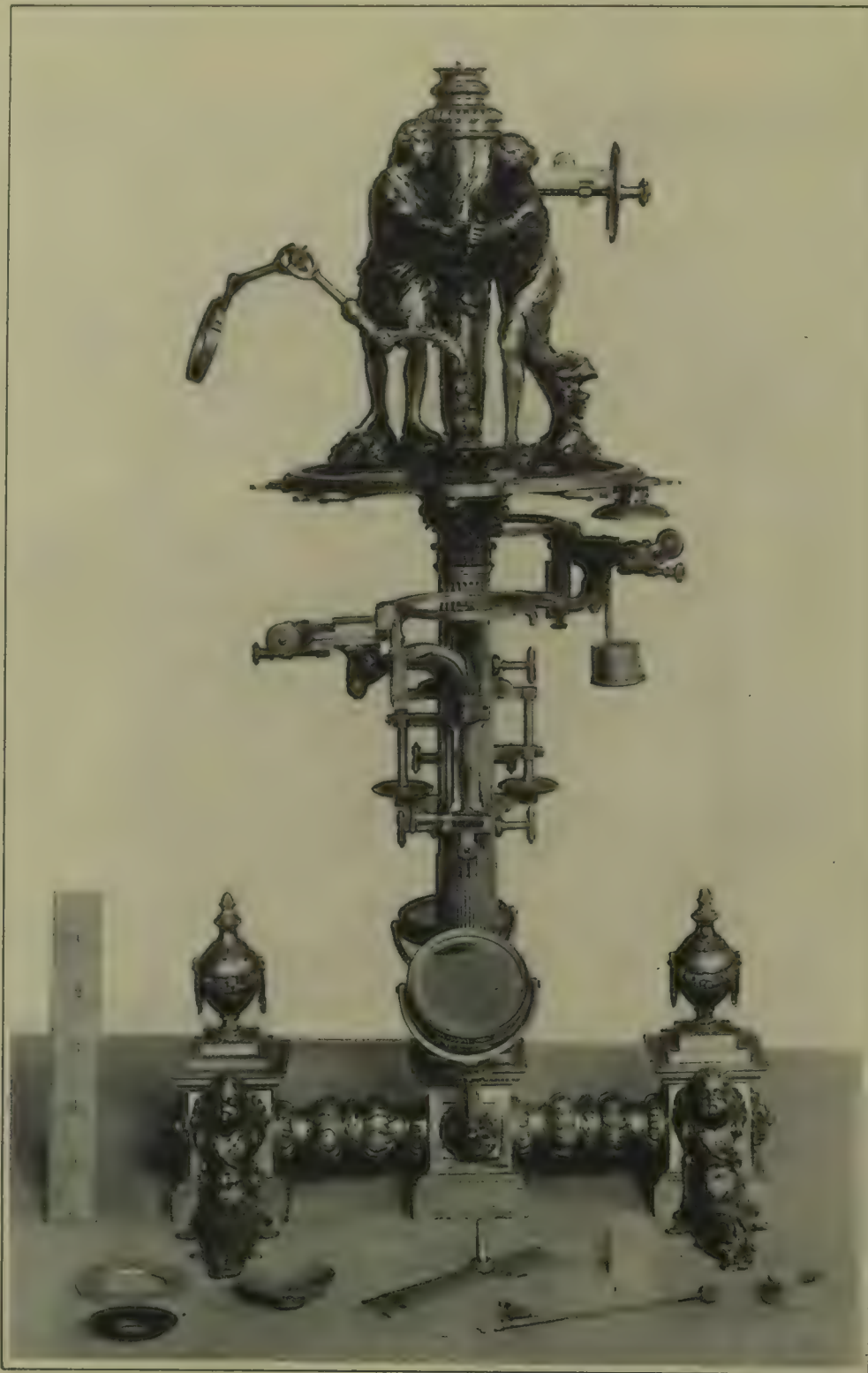
These early microscopes were optically very poor. The lenses were not achromatic. They showed a rainbow halo round the objects and presented false appearances. Attempts were made to improve the optical portion. Lenses were made of quartz, of precious stone, and even of varnish drops, all to no immediate end. It was not until Sir Joseph Lister, F.A.S., gave out his discovery of a new double achromatic object glass in 1829 that the evolution of the modern microscope begins. It becomes an optical instrument of precision.

The record of the nineteenth century is one of astonishing progress. Little by little the laws of optics were worked out, and invention became, not a matter of blind trial and error, but of accurate working to achieve in practice a result known to be in accordance with theory. We find the names of the great makers, Ross, Powell and Lealand, and Beck joined with those of the great English scientists, Lister, Quekett, Sorby, Dallinger, Lord Avebury, Sir Edwin Ray Lankester, and foreigners like Pasteur and Abbé.

There is here some matter for national pride. In the whole history of the microscope we find British brains and British instruments always leading the world not only in material and workmanship, but in design. Our optical instrument manufacturers of to-day make the very best microscopes the world has ever seen, and foreign instrument makers are now copying British standards. To-day we use the ultra-microscope for the study of molecular motion in colloids. In 1742 the corpuscles of the blood were deemed the greatest marvel of microscopic vision, and a whole ant a suitable object for the slide. To-day we are far from the famous maker, Martin, who wrote in 1742 of the ant—

"The Emmet or Pismire is a Creature of the Insect-kind, and when it is seen by a Microscope that will take in the whole it makes such an awkward comical Figure that a Person who beholds it, and can forbear laughing, must be a Man of great Equanimity indeed."

Yet it is through the microscope that we have come to our victories over pestilence and diseases, and to that great broadening of human knowledge in all the fields of endeavour which we class under the general heading of science to-day.



FASHIONED WHEN SCIENCE WALKED HAND-IN-HAND WITH ART: AN EIGHTEENTH-CENTURY DECORATIVE SILVER MICROSCOPE, SURMOUNTED BY TWO ALLEGORICAL FIGURES, AND SIGNED "MADE BY G. ADAMS, IN FLEET STREET, LONDON," INCLUDED IN THE FORTHCOMING SALE OF THE CRISP COLLECTION.

The catalogue of the Crisp Collection (to be sold by Messrs. Stevens on February 17), other examples from which are illustrated on a double-page in this number, describes the above as "a magnificent silver Universal microscope, of very elaborate construction. . . . The compound body, of elegant proportions, fits into a collar in the centre of a silver wreath, which is supported by two allegorical female figures. . . . The whole . . . is in a perfect state of preservation." Both George Adams the elder (d. 1773) and his son, George Adams (1750-95) held the post of mathematical instrument maker to George III., and both wrote books on the microscope.

Photograph by Courtesy of Messrs. Stevens, the Auctioneers.

"Marshall Double Constructed," with many objectives and accessories, were expensive affairs. In these early compound instruments we find in rudimentary form the wheel of stops or diaphragms, the traversing stage or moving object-holder, the rack and pinion focussing movement, and other devices which are still in vastly improved form used in our instruments to-day.

WIDER THAN THOSE OF ST. PAUL'S: CRACKS IN LINCOLN CATHEDRAL.

PHOTOGRAPHS BY TOPICAL.



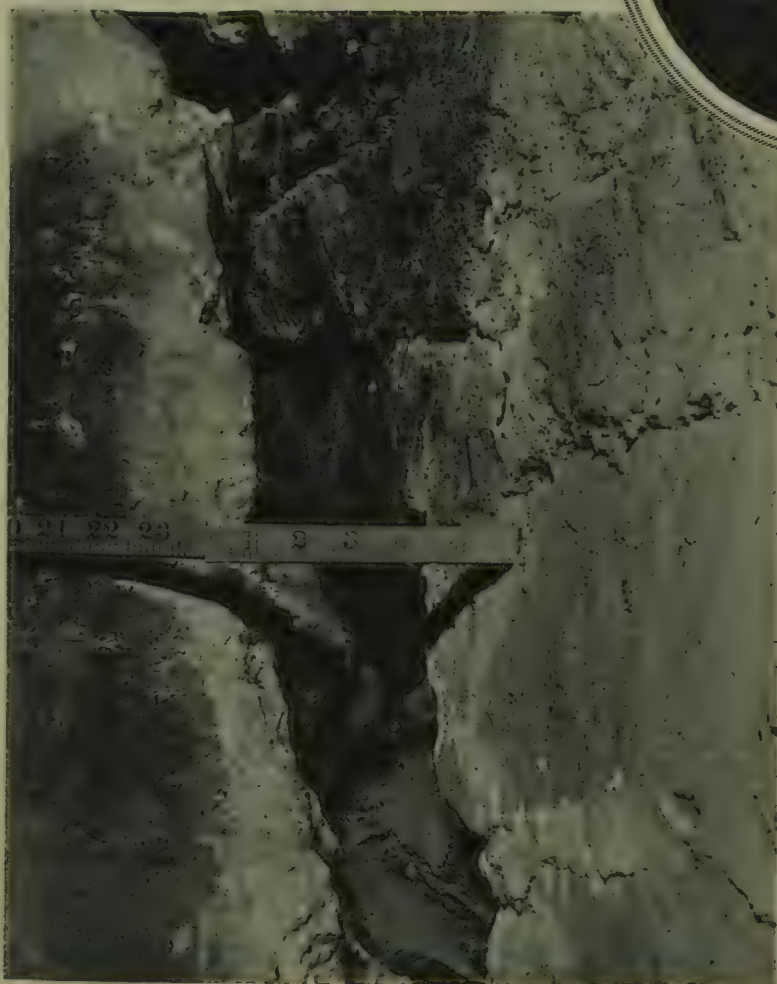
SHOWING METAL BANDS FIXED ON THE WALL TO BIND IT: A LONG CRACK 50 FT. UP ON THE NORTH FACE OF THE SOUTH-WEST TOWER.



CAUSED BY THE SETTLEMENT OF THE CENTRAL TOWER PIER: THE FIRST BAY (FROM THE TOWER, EAST SIDE) SHOWING STONEWORK BADLY OUT OF ALIGNMENT.



THE VETERAN ENGINEER IN CHARGE OF THE PRESERVATION WORK AT LINCOLN: SIR FRANCIS FOX.



WITH A FOOT-RULE TO INDICATE THE GREAT WIDTH OF THE FISSURE: VAULTING IN THE EAST SIDE OF THE SOUTH-WEST TRANSEPT BROKEN AWAY FROM THE MAIN WALL.



WITH LARGE GAPS—SOME SIX INCHES WIDE—BETWEEN THE BLOCKS OF MASONRY: THE NORTH WALL OF THE CENTRAL TOWER, FROM ABOVE THE NORTH-WEST TRANSEPT VAULTING.

As noted in our issue of January 31 under an air view of Lincoln Cathedral, where a deputation from St. Paul's recently compared notes, some of the cracks at Lincoln are six times as wide as any in St. Paul's, and there has long been anxiety for the stability of the building, which is one of the finest examples of Gothic architecture in the country. Illustrations of Lincoln Cathedral appeared in our issue of January 21, 1922, in connection with the appeal for £50,000 for its preservation, and in that of October 11, 1924, we illustrated the damage and the works of repair, which consist largely of grouting, carried out under the

direction of Sir Francis Fox, the famous engineer. It was then stated that £20,000 was still required to complete the operations. The above photographs show still more vividly the serious character of the cracks and fissures. Sir Charles Nicholson, the consulting architect to the Dean and Chapter, stated a few days ago: "The problem was to deal with defective walls and arches which had spread and subsided, and the conditions were different from those at St. Paul's. Grouting has been done in cement and sand. . . . Compressed-air plant was set up at a very early stage."

AT HOME AND ABROAD: PHOTOGRAPHIC RECORDS

PHOTOGRAPHS BY L.N.A., C.N., MANSSELL, EUROPEAN



ROMAN DISCOVERIES IN KENT: A BRONZE HEAD OF MINERVA FOUND DURING THE EXCAVATIONS NEAR OSPRINGE.



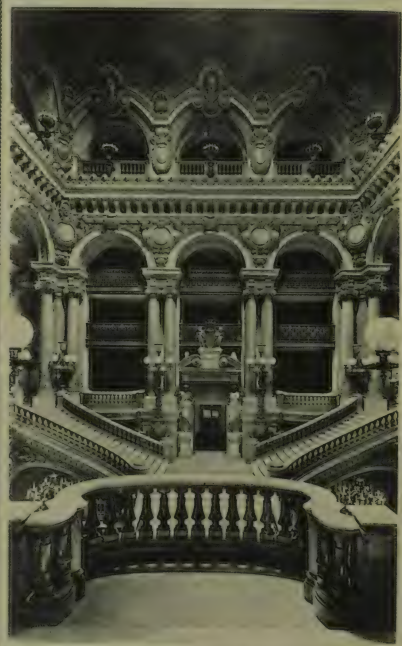
ROMAN URN-BURIALS BROUGHT TO LIGHT NEAR A KENTISH HOP-GARDEN: EXCAVATORS AT WORK AT SYNDALE, NEAR OSPRINGE, WITH ANCIENT VESSELS STILL HALF-EMBEDDED IN THE SOIL.



TRACTOR-DRAWN ARTILLERY IN INDIA: A BRIGADE IN THE DELHI REVIEW PASSING THE SALUTING-BASE—(L. TO R.) THE VICEROY (LORD READING), LORD RAWLINSON, AND AIR VICE-MARSHAL SIR E. ELLINGTON.



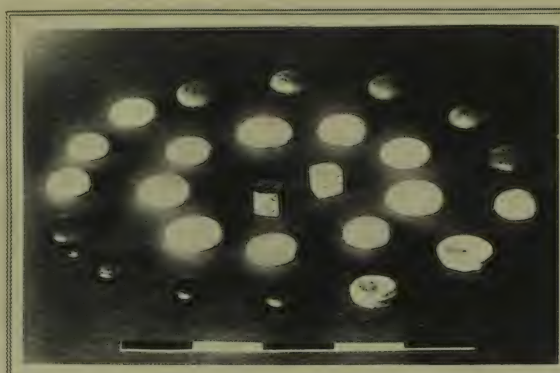
WITH THE ARCHBISHOP OF CANTERBURY (STANDING, ON THE RIGHT) PRESIDING: THE SPRING SESSION OF THE CHURCH ASSEMBLY OPENED IN THE CHURCH HOUSE, WESTMINSTER.



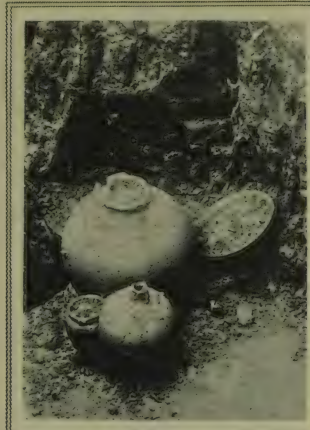
FOR COMPARISON WITH THE FILM "SET" COPIED FROM IT, SHOWN IN THE ADJOINING ILLUSTRATION: THE GRAND STAIRCASE OF THE PARIS OPERA AS IT ACTUALLY IS.

OF NOTABLE EVENTS AND OCCASIONS OF THE WEEK.

MOTION PICTURE CO., LUCKEFETT, AND TOPICAL.



POSSIBLY FROM THE GRAVE OF AN ANCIENT ROMAN GAMBLER: A SET OF COUNTERS AND TWO DICE (OF VERY MODERN APPEARANCE) FOUND IN THE ROMAN CEMETERY NEAR OSPRINGE.



A ROMAN URN CONTAINING ASHES OF THE DEAD, AND VESSELS FOR FOOD AND DRINK: A PERFECT "GRAVE GROUP."



AS BUILT IN A FILM STUDIO: A WONDERFUL IMITATION OF THE GRAND STAIRCASE OF THE PARIS OPERA (SHOWN IN THE ADJOINING PHOTOGRAPH)—A SCENE FROM "THE PHANTOM OF THE OPERA."



A WINTER-SPORT "THRILL" IN THE ALPS: SKI-JÖRING BEHIND AN AEROPLANE AT ST. MORITZ—A SWISS MACHINE WITH TWO DARING SKI-ERS IN TOW ON A FROZEN LAKE.



BESIDE THE AEROPLANE THAT TOWED THEM: PRINCE ODESCALCHI (SECOND FROM LEFT) AND LORD NORTHESK (FOURTH), WITH HERR FOKKER (LEFT), LIEUT. LESLIE HAMILTON (PILOT, CENTRE), AND MR. J. DOWMAN (RIGHT).

Archæology, like charity, sometimes begins at home. At Syndale, near Ospringe, in Kent, some very interesting discoveries have been made, by Mr. William Whiting and Colonel W. Hawley, F.S.A., on the site of an ancient Roman cemetery near a modern hop-garden. A small museum has been established at Ospringe to contain the objects found, the more recent of which include cinerary urns and associated vessels. A bronze head of Minerva and a set of counters and dice have also been unearthed, as well as some thirty skeletons.—Lord Reading, the Viceroy of India, after speaking at the opening of the Indian Legislative Assembly at Delhi, on January 20, attended a review of some 20,000 troops, British and Indian, on the following day. At the saluting-point he was accompanied by General Lord Rawlinson, Commander-in-Chief in India, and Air Vice-Marshal Sir Edward Ellington, Air Officer Commanding the R.A.F. in India, never before represented at an Indian review. The Viceroy was mounted on a chestnut, and Lord Rawlinson on a white horse, as seen in our photograph. The Royal Artillery present included the 2nd and 7th Field Brigades and the 4th Medium Brigade, with tractor-drawn 60-pounders.—The Archbishop of Canterbury, as chairman, presided at the spring session of the Church Assembly, which opened on February 9 in the Great Hall of the

Church House, Westminster. The subject debated was the second Report of the Committee on Patronage and Tenure of Benefices.—A remarkably faithful copy of the Grand Staircase of the Opéra in Paris has been constructed for the new Universal film, "The Phantom of the Opera," which will be produced in London at the end of this month, with Lon Chaney in the title-part, supported by Mary Philbin and Norman Kerry. The Staircase scene, which is one of the most elaborate architectural sets ever built for the films, is illustrated above, side by side with a photograph of the original.—Ski-jöring in tow of an aeroplane (instead of horses) is one of the most thrilling of winter sports, only to be attempted by the best skiers. It was recently seen at St. Moritz, where Lord Northesk and Prince Odescalchi were whirled round a frozen lake attached by ropes to an aeroplane piloted by Lieutenant Leslie Hamilton. A similar event in Canada, at a speed of seventy-five miles an hour, was illustrated in our issue of November 22 last. In the group above are seen (l. to r.) Herr Fokker, the Dutch aeroplane designer, Prince Odescalchi, Lieutenant Hamilton, Lord Northesk, and Mr. Jack Dowman. The other photograph taken at St. Moritz shows a Swiss airman towing ski-jörers.

A BRITISH BATTLE-SHIP SUNK BY A BRITISH FLEET: THE WASHINGTON SENTENCE EXECUTED ON THE "MONARCH."

DRAWN BY C. E. TURNER FROM A SKETCH BY AN EYE-WITNESS.



SAFELY THROUGH THE WAR, ONLY TO BE SUNK BY HER COMRADES: THE END OF H.M.S. "MONARCH," THE FIRST GRAND FLEET BATTLE-SHIP ATTACKED BY A GERMAN SUBMARINE (ON AUGUST 8, 1914), AND ONE OF THE FEW BATTLE-SHIPS ENGAGED WITH THE ENEMY AT JUTLAND, WHERE SHE WAS IN THE SECOND DIVISION.

In accordance with the Washington Treaty the old British battle-ship "Monarch," which was engaged with the German fleet at Jutland, was sunk by the Atlantic Fleet off the Scilly Islands on the night of January 20. Various stages of her last voyage have been illustrated by photographs in recent numbers of this paper. The above drawing, made from a sketch by an eye-witness, shows the ram and part of the bilge-keel of the ship as she finally slid, stern first, to the bottom after having "turned turtle" and floated for a while on the surface. Water is running out of a shell-hole in her side. In the left background are seen (from left to right) the "Royal Sovereign" and "Resolution," of the Second Division of the First Battle Squadron. The time is about midnight, and they are showing only their navigational lights. To the right of the "Monarch" are (from left to right) the battle-cruisers "Hood" and "Repulse," leaving for

London to take part in the recent Vasco da Gama celebrations. Official secrecy was maintained as to the exact details of the gunnery and bombing which sank the "Monarch," but a "Times" correspondent writes: "She provided a target for aircraft, light cruisers, and battle-ships, and when the big ships went from the scene there was no sign of her left. The first attack was made by aeroplanes, which dropped bombs and made several hits; the light cruisers 'Carysfort,' 'Caledon,' 'Curaçoa,' and 'Calliope,' and the destroyer 'Veetis' then pounded her with 6-in. guns; and, finally, salvoes from 15-in. guns were fired at her from between ten and twelve miles by the 'Hood,' 'Repulse,' 'Ramillies,' 'Royal Oak,' 'Royal Sovereign,' 'Revenge,' and 'Resolution.' The attack lasted nine hours, and the 'Monarch' sank at 10 p.m." The "Repulse" will carry the Prince of Wales to South Africa.—[Drawing Copyrighted in the United States and Canada.]

THE SCOURGE OF THE MOMENT: INFLUENZA.

SAYS Shakespeare: "What a piece of work is a man! How noble in reason, how infinite in faculty, in apprehension how like a god." And yet this almost divine creature is, and has been for ages past, attacked, laid low, and often destroyed by a foe so minute, so versatile, resourceful, and persistent that after invoking all his great attributes and powers, this man, so "infinite in faculty," has so far failed to ascertain either the precise nature of his "contemptible" foe or the means of arresting his disastrous ravages!

By the large majority of people, influenza is supposed to have originated in the great epidemic of 1889; but it is almost a matter of absolute certainty that it has existed from earliest times. Epidemics referred to by Hippocrates and Livy as occurring as far back as the third century B.C. were probably influenza, and epidemics characterised by catarrhal symptoms and cough, between the sixth and tenth centuries, were, it may be inferred, of the same class.

In 1173 an undoubted epidemic occurred in Italy and Germany; and in England, in the same year, what was described as "a certain evil and unheard-of cough" affecting everyone and proving fatal to many, was most likely this malady. In a record kept at St. Albans, 1423-1431, is chronicled the fact that "in the beginning of October a certain rheumy infirmity invaded the whole people, and so infected the aged along with the younger that it conducted a great number to the grave."

In 1559 a contemporary wrote, "that divers strange and new sicknesses took men and women in the head, whereof many died; attacking specially priests, a great number of parishes were unserved and no curates to be gotten, and much corn was lost in the fields for lack of workmen and labourers." Sydenham, in 1675, wrote of "epidemic coughs with Pleurisies and Pneumonia supervening, the epidemic sparing hardly anyone of whatever age and temperament; it went through whole families at once." Evelyn, Pepys, Horace Walpole, and Johnson all refer to epidemics rife not only in England, but all over Europe.

In 1847, an epidemic again raged throughout the Continent and these islands, reaching America in 1848. The latest outbreaks, 1889 to the present day, are well known to all of us.

"Murre," "hot ague," "new burning ague," "the strange fever," "the new delight," "the jolly rant," "the new acquaintance," "the gentle correction," "sheep's cough," "sheep's disease" (obviously on account of the loud, bleating cough accompanying it), are other names under which influenza has been variously known during its manifestations.

Influenza differs from a mere "cold" chiefly in three respects. It is more infectious; is commonly associated with a greater degree of fever and constitutional disturbance; and, as a rule, gives rise to more serious after-effects.

Although there can be no question that the virus of influenza is a living organism which is capable of transference from man to man, yet the nature of the virus is still uncertain, and Pfeiffer's bacillus cannot be regarded as the essential causative agent of influenza on present evidence. Opinion is now unanimous that the disease is infectious, although Parkes and others formerly denied that this was the case; and, furthermore, it is said that it returns with a certain degree of periodicity.

Infection is conveyed from the sick to the healthy by the secretions of the respiratory surfaces during coughing, sneezing, or even loud talking. These are transmitted through the air in the form of a fine spray. It is believed that there is great danger of receiving infection within four feet from a person

talking loudly, or within ten feet of anyone coughing or sneezing. The channels of reception are usually the nose and throat, although infection can be received through the eyes. Only a brief exposure seems to be necessary to contract infection. It is clear that the closer the contact the easier the transmission of infection, hence the great importance of avoiding, if it be possible, overcrowded places such as trains, trams, omnibuses, and places of entertainment. Infection can also be carried to the mouth by hands soiled by secretions from the nose and throat of an infected person; for example, by a soiled pocket-handkerchief. The time of incubation is mostly about forty-eight hours, although it may be considerably less. One attack appears to confer, at any rate for a few months, some degree of immunity

of life, the greatest danger arises from underrating the foe. Except in the case of very elderly or weak people, influenza is not in itself particularly dangerous, if only it is treated with great respect, the reason being that under favourable conditions this particular bacillus seems to have the power of calling to its aid other allied, more sinister bacilli and agents, which, though ever present in some degree in the body, are to a large extent innocuous unless favourable conditions, such as the general weakening of the body, are afforded them. When, therefore, the individual begins to suffer during an epidemic from headache, fever, or feverish cold, general pains, nausea, cough, and other cardinal symptoms of influenza, it is most important that he or she should at once retire to bed in a warm room

and remain there until the evening temperature has been at least normal for two days. In all cases it is wise to seek medical advice. When the above symptoms are present, *however slight they may be*, it cannot be stated too strongly that it is most dangerous to disregard them by going to work or by exposure outside the house. Failure to observe this simple precaution has been in hundreds of cases, if not the cause of death, at any rate the aggravation of the symptoms and the causation of bodily infirmities of all sorts which have affected the health of the sufferer for long periods of time and may be even for the whole of his life.

Relapses are frequent, and are readily incurred unless care is taken during convalescence to avoid chill and over-exertion or too speedy a return to work. *Pneumonia is a very common and most dangerous sequel of neglect of these precautions*, not only during the onset of the disease, but also during the early days of convalescence.

It is worth while noting that both during the attack and for a little while afterwards the disease is very apt to affect the ear, and great care should be taken especially to avoid exposing young children, and even adults, to draughts and cold winds.

It is very desirable to take good regular food during convalescence. As regards alcohol at this time and during an attack, especially when there is great prostration, a certain measure is probably beneficial, but this is perhaps best determined by the medical attendant.

A word or two may be said with regard to inoculation.

Since we are uncertain of the primary cause of influenza, no form of inoculation can be guaranteed to protect against the disease itself. The chief dangers of influenza being, however, in its complications, it is probable that inoculation does much to mitigate the severity of the infection and to

diminish mortality by raising the resistance of the body against the chief secondary infecting agents. There need be no hesitation in accepting inoculation when it is administered under competent medical advice.

In sum, it may be said, by those who have had the treatment of a very large number of cases of influenza since 1889, that the disease would by no means be as harmful and deadly as it is if only people would recognise the fact that the germ acquires its most formidable and malignant properties *if it is not treated with deep respect*, and this not on account so much of its own inherent evil nature, but on account of its power and habit of calling to its assistance other more potent germs which in combination with it prove so deadly to their otherwise powerful yet vulnerable victims. Many of the most serious complications arising both during and after an attack of influenza are begotten of, or are the result of, this unholy alliance or combination. When, then, in the grip of this protean and subtle enemy, above all things, *great and constant care is most needful*, for—

"What boots it at one gate to make defence
And at another to let in the foe?" O. A.



PRESENTED TO GABRIELE D'ANNUNZIO, THE FAMOUS ITALIAN POET AND PATRIOT, BY THE MUSSOLINI GOVERNMENT: THE HISTORIC VILLA FALCONIERI, NEAR ROME—THE ENTRANCE, WITH ITS SIXTEENTH-CENTURY LION GATE.

Photograph by Alinari.

from another, but this is by no means always the case.

As regards prevention, in addition to the measures already outlined, it is most desirable to keep the body, during an epidemic, in as good state of health as is possible, to avoid chills and draughts, and sitting in a room longer than is absolutely necessary with anyone who is already suffering from the disease.

A simple gargle of common salt, one teaspoonful to a pint of warm water, to which enough permanganate of potash may be added to give the liquid a pink colour, may be used two or three times a day, either as a gargle or as a nasal wash. No drug has yet been proved to have any specific influence as a preventive of influenza, although quinine, in the form of ammoniated tincture of quinine, one teaspoonful three times a day in water after meals, or tablets of three grains of hydro-bromide of quinine twice or thrice daily after meals, are undoubtedly of considerable value.

When attacked, however slight the symptoms may be, the great matter is to *treat the disease seriously*. With influenza, as in many other concerns

FROM THE WORLD'S SCRAP-BOOK: A PAGE OF INTERESTING ITEMS.

PHOTOGRAPHS BY JAMES'S PRESS AGENCY, C.N., D'AMICO (SUPPLIED BY PROFESSOR FEDERICO HALBHERR), P. AND A., AND TOPICAL



HAMMOCKS ON INVERTED FORMS IN A CLASS-ROOM: PUPILS IN THE INFANTS' DEPARTMENT OF BRADFORD CATHEDRAL SCHOOLS TAKING THEIR NECESSARY AFTERNOON REST IN A NOVEL AND COMFORTABLE MANNER.



ACQUITTED OF MURDER IN PARIS: Mlle. UMINSKA (RIGHT), WHO SHOT HER FIANCÉ TO SPARE HIM FURTHER SUFFERING FROM CANCER, AT THE SEINE ASSIZES—SHOWING THE INTERPRETER TAKING THE OATH.



SPECIALLY LAID OUT FOR THE HOLY YEAR CELEBRATIONS WITH AN INSCRIPTION IN FLOWERS, INCLUDING THE POPE'S NAME: PART OF THE VATICAN GARDENS IN ROME.

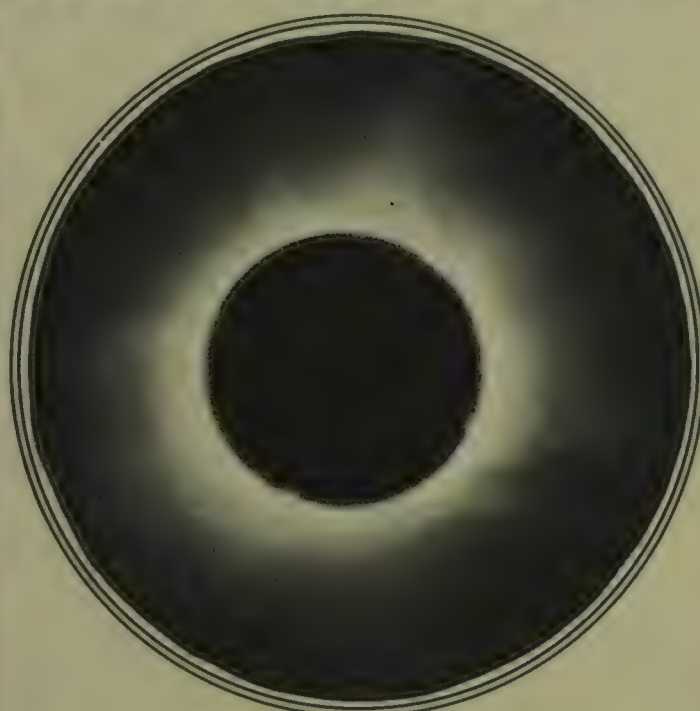


WITH PAVILIONS BUILT AT EACH SIDE, AND TWO AFRICAN NATIVE HUTS: THE FAMOUS GARDEN OF THE PINE-CONE (IN BRONZE, LEFT FOREGROUND) AS THE CENTRAL COURT OF THE EXHIBITION AT THE VATICAN.



THE RECENT ECLIPSE OF THE SUN AS SEEN IN AMERICA: CROWDS WATCHING THE PHENOMENON ON SNOWY GROUND AT WESTLEY, RHODE ISLAND.

A novel method of giving infant pupils their necessary afternoon rest has been adopted in the Cathedral Schools at Bradford, where the children are ensconced in hammocks attached to inverted forms in the class-room.—At the Seine Assizes in Paris, on February 7, Mlle. Stanislaw Uminska, a young Polish actress, was acquitted of murdering her fiancé, Jean Zynowski, a Polish writer, whom she shot in a private hospital last July to save him further suffering from cancer. She had nursed him devotedly, and had offered her blood for transfusion. He had asked her to put him out of his pain, and, when the case became hopeless, she shot him in the mouth with a revolver while he was asleep. The jury retired



SHOWING THE CORONA AT THE TIME OF TOTALITY: A FINE PHOTOGRAPH OF THE SOLAR ECLIPSE TAKEN AT NEWBURGH, NEW YORK.

only for five minutes.—In preparation for the Holy Year celebrations in Rome, great changes have been made in the Vatican Gardens, including a remarkable inscription in planted flowers reading "Pio XI., Anno Santo, 1925." The famous Giardino della Pigna (Garden of the Pine Cone) has been converted into the central court of the Exhibition, and now contains pavilions and two African native huts. It takes its name from the huge bronze pine-cone made by the ancient sculptor, P. Cincius Salvius. Next to it (on the extreme left in our photograph) is the base of the Antonine Column.—The total eclipse of the sun on January 24 was watched by millions of spectators in the United States.

PERSONALITIES OF THE WEEK: PEOPLE IN THE PUBLIC EYE.

PHOTOGRAPHS BY RUSSELL, CORBETT, C.N., P. AND A., AND ELLIOTT AND FRY. PHOTOGRAPH OF PROFESSOR DART BY COURTESY OF PROFESSOR G. ELLIOT SMITH.



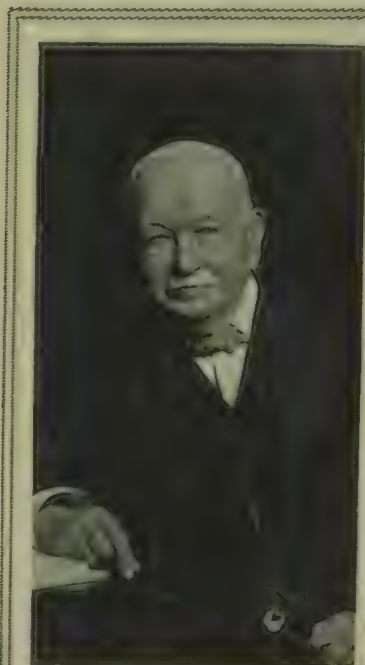
A WELL-KNOWN PUBLICIST:
("VANOC" OF THE "REFEREE"):
THE LATE MR. ARNOLD WHITE.



"ONE DAY, FOR ALL I KNOW, I MAY NEED A LIFE-BOAT, AND, IF SO, I HOPE IT
MAY BE THE CITY'S NAMESAKE": PRINCE HENRY (STANDING, CENTRE) OPENING A
FAIR AT BIRMINGHAM TO RAISE £10,000 FOR A NEW LIFE-BOAT.



STRIVING TO ABOLISH SLAVERY
IN HIS STATE: THE MAHARAJAH
OF NEPAL.



A VETERAN CHAMPION OF UNI-
VERSAL PENNY POSTAGE: THE
LATE LORD BLYTH.



THE DISCOVERER OF THE TAUNGS SKULL (*AUSTRALOPITHECUS AFRICANUS*):
PROFESSOR RAYMOND A. DART (STANDING), PROFESSOR OF ANATOMY AT THE
WITWATERSRAND UNIVERSITY, WITH PROFESSOR JOSEPH SHELLSHEAR, D.S.O.



URGING £2,000,000 REPAIRS TO
ST. PAUL'S: MR. JOHN TODD,
CITY DISTRICT SURVEYOR.



SURGEON OCULIST TO THE KING
AND TO KING EDWARD: THE
LATE SIR ANDERSON CRITCHETT.



ELECTED BISHOP OF BANGOR:
CANON DANIEL DAVIES, VICAR OF
BODELWYDDAN.

Mr. Arnold White wrote for many years in the "Referee" under the pen-name of "Vanoc," and published several books, including "Efficiency and Empire"—two words which summed up his political creed.—Lord Blyth was noted not only as an advocate of cheap postage, but as an agriculturist and stock-breeder, a Liberal Free Trader, and a worker for world peace and Anglo-French friendship in particular.—Prince Henry opened a "Fancie Fayre" in the Town Hall, Birmingham, on February 3, to help in raising £10,000 to provide a modern life-boat to be called the "City of Birmingham." He recalled that the Royal Lifeboat Institution, which has just kept its centenary, had been the means of saving 60,000 lives.—The Maharajah of Nepal, Sir Chandra Shum Shere Jung, has taken the lead in a movement to abolish slavery in that State, and has given over £85,000 towards it. There are 51,419 slaves and 15,719 slave-owners in Nepal.—Mr. John Todd, District Surveyor to the City Corporation, has stated

that radical repairs to St. Paul's, costing £2,000,000, are necessary to ensure its permanent stability. A committee of the Corporation has recently been considering the "Dangerous Structure" notice served on the Dean and Chapter of St. Paul's last December.—Sir Anderson Critchett, the famous ophthalmic surgeon, and one of the first to specialise in that subject, became Surgeon Oculist to King Edward in 1901, and to King George in 1910.—Professor Raymond A. Dart, the discoverer of the Taungs skull, is described by Professor G. Elliot Smith as "one of the, at most, three or four men in the world who have had experience of investigating such material and appreciating its real meaning." He became Professor of Anatomy at the Witwatersrand University, Johannesburg, two years ago.—Canon Davies, Bishop-elect of Bangor, was Rector of Denbigh for ten years, and Vicar of Wrexham from 1907 to 1923, when he became a Canon of St. Asaph.

THE CIGAR-MAKERS' "ROMANCE": READING TO WORKERS IN HAVANA.

REPRODUCED FROM "ROUND THE WORLD," BY FRANK HEDGES BUTLER, F.R.G.S. BY COURTESY OF THE PUBLISHERS MESSRS. T. FISHER UNWIN, LTD.



"A READER PAID BY THE WORKPEOPLE IS PERCHED UP IN A PULPIT, AND READS THE PAPER . . . OR SOME NOVEL": A HUMAN "LOUD-SPEAKER" FOR "BROADCASTING" FICTION AND NEWS, TO ENLIVEN CIGAR-MAKERS IN A HAVANA FACTORY.

In his delightful new book of travel, "Round the World" (recently reviewed in our pages), Mr. Frank Hedges Butler gives a most interesting account of Havana and the manufacture of its famous cigars. Of the scene here illustrated he says: "About a hundred to two hundred workmen sit in a room rolling all sizes of cigars. A reader paid by the workpeople is perched up in a pulpit and reads the paper, news of the day, or some novel. Some day, when broadcasting and listening-in and loud-speakers are improved, these new inventions will be much used in the factories of the world to educate the people." Describing the methods

of cigar-making, he writes: "The tobacco intended for fillers, or the inside part of the cigars, is stripped of stems, and this is done by women, mostly by hand, on account of the various sizes of the leaves. Another selecting operation is then given to grade the leaves according to size and strength, after which they are placed in barrels or in bins. . . . The process takes from two to six weeks, or possibly longer. . . . Many cigar-rolling machines have been invented, but no mechanical device can achieve the perfect workmanship of a cigar rolled by an expert."



THE WORLD OF SCIENCE.



THE RESURRECTION OF KRAKATAO.

By W. P. Pycraft, F.Z.S., Author of "The Infancy of Animals," "The Courtship of Animals," etc., etc.

It needs but a slight reminder to bring back to memory the appalling fate of Krakatao, which so profoundly shocked the world just two-and-forty years ago. It was registered even here, in the sunset skies of peaceful England. At first we were at a loss to account for these strange effects, but we soon learned that one of the most terrible volcanic eruptions known in history had taken place. And the horror was prolonged from May 20 to Aug. 26, during which time explosions followed one another at brief intervals, finally terminating in two terrific outbursts, when half of the peak of Krakatao—nearly 3000 feet high—was blown into space. As a consequence, not only this island, but the neighbouring island of Verlaten, was buried under hot ashes to a depth of nearly 200 feet! Furthermore, at least one-half of the neighbouring island of Sebesy was similarly covered.

That not a living thing on the two first-named islands escaped destruction goes without saying. Unfortunately, however, no survey of the natural history of these islands had ever been made, so that we can but partially estimate the extent of the destruction. For weeks they remained under a mantle of glowing embers. But from the moment of the first survey after the eruption was over, biologists have kept a watchful eye on these wastes of ashes, knowing well that, in due time, Nature would restore what she had so ruthlessly destroyed—at any rate with living things of some sort, though there was uncertainty as to when the work of restoration would begin, what would be brought back, and by what means.

A glance at the accompanying map will show the sources from which this new life had to come. These islands, it will be seen, lie in the middle of the Sunda Straits, dividing Sumatra from Java. Vegetation, of course, was the first to appear. To-day, forests, thickets, and meadows clothe the surface both of Krakatao and Verlaten. Kindly currents and wind probably brought the seeds of the welcome verdure from the neighbouring island of Sebesy, but, as a further study may show, some may well have come from Java on the one side and Sumatra on the other. Until at least some vegetation had gained a hold, animal life was impossible. Of the species which have now established themselves, naturally such as possess the power of flight are in the majority. But there are many surprises. The earlier collections showed very few species, but a great number of individuals, which is explained by the absence of enemies. Flying animals, as was to be supposed, were among the first arrivals.

In 1908 no terrestrial mammals had reached Krakatao, but by 1921 the rat had not only landed there, but had spread all over the island, and both that species and a native rat were common on Sebesy. Two reptiles—a python and a varanus lizard, both of which are strong swimmers,

and have frequently been met with far out at sea—had reached Krakatao by 1908, and two geckos by 1921. These probably were stranded on driftwood. But what are we to say of the lizard and the python?



WHERE NEW LIGHT HAS BEEN THROWN ON NATURE'S RE-POPULATION OF DEVASTATED ISLANDS: A MAP SHOWING THE POSITION (IN RELATION TO OTHER LAND) OF KRAKATAO AND VERLATEN, WHERE ALL LIFE PERISHED IN THE GREAT ERUPTION OF 1883, BUT FRESH FAUNA HAVE SINCE ARRIVED.

Did they venture forth on an aimless voyage, or with the object of reaching this island, scenting its renewed verdure, even though beyond their range of vision? Eleven species of wingless insects, four



A SPECIES DESTROYED IN MILLIONS BY A SUDDEN DROP IN THE TEMPERATURE OF THE WATER: A TILE-FISH.

"The Tile-Fish was about to be used in American fish-markets when—in 1882—a sudden drop in the temperature of the zone of water in which it lived well-nigh exterminated the species. Their dead bodies were found floating in millions spread over an area of from 5000 to 7000 square miles of the ocean. However, a remnant remained, and it seems to be recovering its numbers again."

of centipedes and millipedes, and no less than seventy-three of spiders were found in Krakatao in 1921. Some of these, probably, had been carried out supported on gossamer strands, drifted by the wind. Others must have travelled by means of driftwood, for it is difficult to see how land crustacea, molluscs, and earthworms could otherwise have crossed several miles of salt water.

These facts, which have been carefully gleaned by Dr. Dammerman, of the Buitenzorg Museum, are much more than interesting records of the repopulation of islands which have, so to speak, been raised from the dead. For they provide material of the highest value to students of the geographical distribution of animals, and of islands in particular. For when Wallace wrote his "Island Life" he had no such data to draw upon, and he had, therefore, to be content with probabilities in accounting for island faunas. And earthworms were a stumbling-block. From their intolerance of salt water, their presence on islands seemed to make it certain that such must at one time have formed part of the nearest mainland, being "continental," as distinct from "oceanic," islands, which have never formed part of the mainland, but are either volcanic in origin or have

been formed by coral reefs. Into the details of this matter of the fauna and flora of islands it is impossible to enter here, for the theme demands a volume to itself. Let it suffice to say that the restocking of Krakatao and Verlaten has furnished us with some very suggestive and important facts, which henceforth will have to be taken into account in all discussions relating to the origin of the plants and animals on islands. But too much stress must not be laid on the facts which have been gleaned in regard to the particular islands now in question. For these are in a specially favoured situation for restocking, owing to their sheltered position between two relatively large land-masses like Sumatra and Java, and the direction of the currents which divide them. The rapidity with which the restocking has taken place is a sufficient proof of this need for caution in endeavouring to account for the flora and fauna of islands which lie hundreds of miles from the nearest mainland.

In volcanic eruptions, such as that which destroyed Krakatao, the loss of life is not confined to the land-dwellers in the immediate vicinity. In this very instance it threw a tidal wave high upon the neighbouring shores of Sumatra and Java, engulfing some 36,000 people with their villages. And so recently as the last week of January of this year a volcanic outburst under the sea threw millions of fish on to the beach of Waler's Bay, Cape Town. The dead bodies of sharks, soles, stock-fish, and other species were strewn along the shore for a distance of two miles, and in one place they lay two feet deep!

Nor are these disasters confined to the present day. In the British Museum of Natural History there may be seen slabs of fossil fish which had evidently been swept to instant destruction by such agency. The Breccias of Pikermi, Greece, again, show the remains of a medley of now extinct animals which had similarly died a swift and violent death. Perhaps the most sensational of all such cases is furnished by the Pleistocene tar-pools of Rancho la Brea, in Southern California. Here, over considerable areas, the oxidation and solidification of petroleum, which has risen up from the underlying oil-shales, has formed tar-pools of a very viscid nature. The edges of such pools become hardened into asphalt. In seasons of drought beasts and birds came to these pools in the hope of finding water. As they waded out they became speedily enmeshed by the sticky mass, and in their struggles for freedom made matters worse. In the adjoining photograph of a spirited drawing by that delightful artist, Mr. Bruce Horsfall, an elephant is seen which has fallen in its struggles. A sabre-toothed tiger has seized the opportunity for a feast.

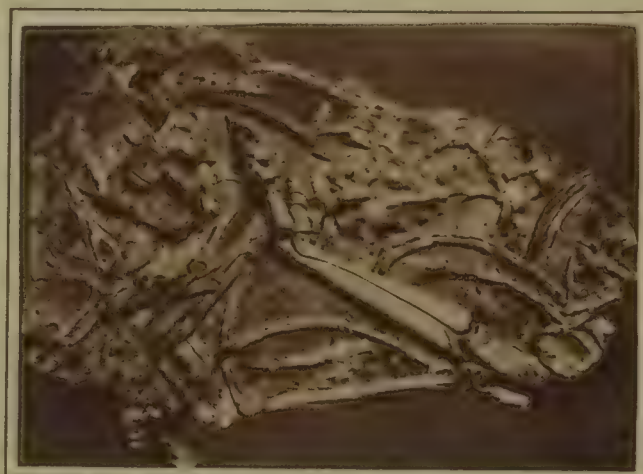
But presently he will fall a victim, as the wolves at the head of the elephant have already done. This is no imaginary picture, for hundreds of skeletons of



THE "MOST SENSATIONAL OF ALL SUCH CASES" (OF WHOLESALE DESTRUCTION OF LIFE): THE PLEISTOCENE TAR-POOLS OF RANCHO LA BREA, SHOWING ELEPHANT, SABRE-TOOTHED TIGER, AND WOLVES ABOUT TO BE ENGULFED—A RECONSTRUCTION DRAWING.

"A small and extinct species of elephant stepping from the hardened edge of the pool into the tar was unable to retreat, and in its struggles fell over. Two wolves, seeing its helpless plight, began to attack it, and were driven off by a sabre-toothed tiger. Evidently these strange creatures often fought with one another, and were in turn swallowed up, for hundreds of skulls and skeletons have been taken from these parts."

From a Drawing by Bruce Horsfall.



EVIDENCE OF A SOME GREAT PREHISTORIC CATAclysm: PART OF ONE OF THE "BONE-BEDS" OF PIKERM, IN GREECE, SHOWING REMAINS OF AN EXTINCT THREE-TOED HORSE (HIPPARION) WITH BONES OF ANTELOPES AND BIRDS.

these animals, as well as of great vultures and other birds of prey, have been recovered. The number of victims must have amounted to hundreds of thousands, for such traps were ever in active operation, over hundreds of years. They are still, indeed, levying their toll of victims.

MARS DURING ITS RECENT NEAR APPROACH: THE LATEST OBSERVATIONS.

DRAWN BY SCRIVEN BOLTON, F.R.A.S., F.R.S.A., ETC.



SHOWING CONDITIONS ESSENTIAL TO LIFE: A NEW INTERPRETATION OF THE MARKINGS ON THE PLANET MARS—LAND, WATER, VEGETATION, CLOUDS, DESERTS, OASES, POLAR SNOWS, AND A SUBSTANTIAL ATMOSPHERE.

"Results are now forthcoming," writes Mr. Scriven Bolton, "of observations of Mars, made chiefly with the great American telescopes, during the planet's recent near approach. At the Lowell Observatory, Arizona, photographs taken in yellow light show seasonal changes, clouds, and snow. Radiation measures were made at this station as well as at Mount Wilson Observatory, California, where the 100-inch reflector was used. The vegetal areas, which grow, mature, and decay with the march of the seasons, are warmer than the light regions. The mornings are cooler than the evenings. Temperature increases with the advent of summer. The Martian climate is decidedly cooler than ours, temperature, except in the tropics, being below freezing-point. Here, however, the Lowell observers think

that the climate is similar to a cool, sunny, terrestrial day, with the thermometer at 60 degrees Fahr., while in the equatorial deserts temperature may be as high as that of the Sahara. From photographs taken at the Lick Observatory with three different colour filters, Dr. W. H. Wright concludes that the atmosphere is far denser than hitherto supposed, and that its height is 120 miles. The various features depicted in the above picture are interpreted as land, water, vegetation, and so on, which contribute to the conditions essential to life. The elements and compounds in the atmosphere might easily overcome the extreme cold at night, and provide a safe abode for red-blooded organisms." Thus life on Mars is still regarded as possible.—[Drawing Copyrighted in the United States and Canada.]

LONDON NEWS: LEIGHTON HOUSE; DANSON PARK; WATERLOO BRIDGE.

PHOTOGRAPHS BY SPORT AND GENERAL, SPECIAL PRESS, G.P.U., AND C.N.



OFFERED TO KENSINGTON BOROUGH COUNCIL IN TRUST FOR THE NATION: LEIGHTON HOUSE—THE ARAB HALL.



WITH DOMED ROOF, BEAUTIFUL MOSAICS, AND FOUNTAIN BASIN CARVED FROM A BLOCK OF BLACK MARBLE: THE INTERIOR OF THE ARAB HALL IN LEIGHTON HOUSE, RECENTLY OFFERED TO THE NATION.



ACQUIRED FOR PUBLIC RECREATION BY THE BEXLEY URBAN DISTRICT COUNCIL: DANSON PARK, A DELIGHTFUL ESTATE OF OVER TWO HUNDRED ACRES—THE DUCK PONDS.



WITHIN A MILE OF GREATER LONDON'S BOUNDARY: A PICTURESQUE BOAT-HOUSE, IN THE FORM OF A GREEK TEMPLE, IN DANSON PARK, THE NEW RECREATION GROUND FOR SOUTH LONDON.



PROBABLY TO BE PULLED DOWN AND ENTIRELY REBUILT: WATERLOO BRIDGE (LEFT) AND THE NEW TEMPORARY BRIDGE UNDER CONSTRUCTION, WITH TWO STEEL SPANS IN POSITION.



PENGUINS IN LONDON: A CONSIGNMENT FROM GEORGIA TO HAMBURG BEING PLACED ON BOARD THE S.S. "VIOLA" AT STEPNEY.

Leighton House, the beautiful home of the late Lord Leighton, P.R.A., the famous painter, in Holland Park Road, has been offered by the sole surviving trustee, Mrs. Russell Barrington, to the Kensington Borough Council, to be taken over in trust for the nation. The offer has been referred to the Libraries Committee, of which Sir Alfred Rice-Oxley, ex-Mayor of Kensington, is President, and the Improvements Committee, presided over by Sir Aston Webb, ex-P.R.A. It is stipulated that no alterations be made to the famous Arab Hall, with its domed roof of eight arched windows of Eastern coloured glass. Since Lord Leighton's death, the house has been used for the promotion of art, music, and literature.—The Bexley Urban District Council has recently purchased from the

Bean Trustees, for £16,000, the beautiful Kentish estate of 203 acres known as Danson Park, near Welling, and within a mile of the L.C.C. boundary. It will be a new place of public recreation for South Londoners, as well as the people of Bexley Heath, Erith and Dartford. The park includes a stone mansion and a lake of twenty acres.—The fate of Waterloo Bridge will again come before the L.C.C. on February 17. A resolution to widen the bridge and preserve the character of Rennie's work was rescinded last July, and a scheme for underpinning was rejected. A plan for complete demolition and rebuilding is now to be considered. The temporary bridge is expected to be finished this autumn.—A number of penguins from the Antarctic recently arrived in London on their way to Hamburg.

THE WORLD OF WOMEN

THE King and Queen being back in town has made for a certain social liveliness, for the most part of a charitable character. Their Majesties' dining with the American Ambassador and Mrs. Kellogg was specially an honour to the departing diplomat and his wife, for there are now very few people that the King and Queen dine with, while dance hostesses are honoured only by the young members of the Royal Family. The great balls of earlier days, only a little removed from State functions, have passed with the passing of great private houses. Probably they are unregretted save by some of the survivals of their times. Certainly they would bore the young folk of to-day, in their own colloquial expression, "stiff."

Prince George has had a sharp attack of tonsilitis. He was at Buckingham Palace, but was not left in the dark when the Board of Works electricians had their little ebullition of spirit. Sister Agnes—Miss Agnes de Keyser—was in charge of the nursing of the royal patient, who has been under her care before. She started the King Edward VII. Hospital for wounded officers during the South African War, and ran it almost entirely at her own expense. She is a bright and amusing, as well as a very good, woman, and is an intimate friend of several members of the Royal Family. She is frequently with the Queen, and has the private entry through the gardens to Buckingham Palace. About all nursing questions she is consulted, as she is well experienced and quite unbiassed.

Are the days of Sunday church-going numbered? Many thinking people believe so, but that does not infer that religion is dying out. The teachers and preachers, these thinkers say, will have to come out among the people as the Founder of the Christian religion did in His time, when readings of the Law in the Synagogue were treated as of much less importance than teachings by the wayside and the seashore and in the mountains. Many of our village churches are almost empty, partly because people go motoring on Sunday, and partly because Anglo-Catholic ministrations fail to gain support. Wireless makes it possible to hear a service and sermon at

Two captivating hats from Debenham and Freebody's, Wigmore Street, W. Brown pedal straw and petersham trimmed with ostrich feathers express the one above, and a strip of black leather stitched with white ornaments that on the right, carried out in black straw and petersham. (See page 268.)

home. Those who believe that the usefulness of churches is passing, as so much has passed, have something to go on; but even they believe that the gathering of ourselves together in sacred buildings will always be periodically observed—but not once a week.

The Marquess of Graham, who has been having an acrimonious discussion with the Midland and Scottish Railway Company about steamers to Arran, has gone to Turkey and Angora, where he will hear much about the expulsion of the Greek Churchmen. Lady Graham and her elder daughter, Lady Mary Graham, now in her fifteenth year, will be at Easton Park, Suffolk, during his absence. The Earl of Kincardine will be eighteen in May, while the youngest member of the family will be five in November. Mary Duchess of Hamilton, the Marchioness of Graham's mother, married as her second husband Mr. Robert Carnaby Forster, of Easton Park, Wickham Market, Suffolk, where she lives. Lord and Lady Graham were married from Devonshire House, then the residence of Lady Graham's grandmother, the Duchess of Manchester and Devonshire.

The British public, always warm-heartedly generous, will not be cold to the appeal voiced by the Duke of Northumberland for the Southern Irish Distressed Loyalists, especially for the ex-Service men who, having fought for the Empire in the war, are now "taboo" by the Irish Free State and by such of their one-time friends and now near neighbours who have been so cruelly misled into thinking England the enemy of Ireland. These men, with their wives and families, are starving. So long as they could get potatoes and turf their case was not desperate. Now it is, as the floods have destroyed both. The S.I.D.L. Fund has helped nearly a hundred families, and has now to decline applications owing to lack of funds. The great, big-minded, and warm-hearted British public will not allow that!

Everyone who knows him is glad that the Duke of Leeds is better, and that he is going on his well-loved sea to convalesce. He is fitting out the yacht—a 300-ton steamer—which he purchased from Mr. Lee Guinness last year, and is going a voyage. He has called her *Aries*, after the one he owned which was lost in the war. The Duke loves adventure. During one Cowes week he had his arm in a sling, due to the bite of a crocodile. He is tall, slender, and active, looking older than his age, because he is quite silver-haired and bearded. The Duchess and their only son, the Marquess of Carmarthen, are at their villa at Bordighera. The Duchess, who is a sister of the Earl of Durham, never winters in England, and Lord Carmarthen, although stronger than he used to be, finds an English winter trying.

Would anyone believe that five times as many people travel by road as by rail? Statistics go to prove that this is so, and as motor-cars become

cheaper, the number of road travellers will increase. In a hundred yards on the Brighton road on a Sunday afternoon, even now in winter, over a hundred cars can be counted. Included are motor-bicycles and side-cars. The desire of British people for getting about grows with the facilities offered, and no one can wonder that workers prefer getting from door to door in the open, to catching trains and sitting in crowded, stuffy railway carriages, when they go to the country or the seaside, as so many thousands do on Sundays nowadays.

Lord Settrington, only surviving son of the Earl and Countess of March, came of age last week. He is the next in succession to his father to the Dukedom of Richmond and Gordon. One of his brothers died in infancy, the second was in the Irish Guards, and died in 1919 of wounds received in Russia. His two sisters are Lady Amy Coats and Lady Doris Vyner. He is a tall, slender, dark-eyed young man, who has made himself a very great favourite in all the district round Chichester. Lady March takes



Destined for early spring days is this well-cut double-breasted coat of black repp trimmed with black-and-white plaid kasha, from Debenham and Freebody's. (See page 268.)

an active interest in all the affairs of the place, her husband being unable to get about easily.

A number of people returned to town last week, and more are returning every day. Lady Evelyn Guinness is the pretty daughter of the Earl of Buchan, who was known in his earlier days as the "pocket Adonis," as he was small of stature and perfect of feature. She made a début as a political hostess by holding a reception on the eve of the opening of Parliament at her fine house in Grosvenor Place. Some wag suggested that it should be known as Guinness Place, for the Earl of Iveagh has two of its big mansions made into one, and the Hon. Ernest and Mrs. Guinness have No. 17, so the family owns four of these mansions. Lady Astor will entertain as usual, probably a little more than usual, and the Duchess of Devonshire will have some parties. A. E. 1.



Two delightful new models from Debenham and Freebody's: the afternoon frock is carried out in black kasha over satin, embroidered with steel beads and hemmed with looped chenille, while the evening frock is of filmy lace over satin. (See page 268.)

THE WORLD OF MUSIC.

STEAM LOCOMOTIVES IN MUSIC.

IT was clever of Mr. Eugene Goossens to provide London with a minor musical sensation on his first reappearance as conductor of the Royal Philharmonic Society after his visit to America. Mr. Goossens, although an exceedingly able conductor, is wise enough not to attempt to compete with the ultra-great conductor virtuosos on their own ground. He leaves the classics on the whole to Furtwängler and Weingartner, while he arranges programmes of modern compositions with a sprinkling of new works by young musicians as yet little known to the general public. Such was the programme of the third Philharmonic concert of the present season, when we had an exceedingly mixed programme, with Richard Strauss's rarely heard tone-poem, "Also sprach Zarathustra," as the principal item. The novelty of the evening was the first performance in London of Arthur Honegger's "Pacific 231," which actually was first performed in England under Mr. Hamilton Harty at a recent Hallé concert in Manchester. "Pacific 231" designates a three-hundred-ton prairie locomotive, and the number "231," I understand, refers to the size and number of the wheels. I believe in this country this type of engine is described as a "642," because the wheels on both sides of the engine are counted. Arthur Honegger is a young French composer who was born in Havre in 1892 of Swiss parents. He is well known in Paris as the leader of a group of young modernists known as "The Six." New movements—if the leaders have any real individuality—always break up sooner or later, and "The Six" have already separated into their individual fragments, of whom Honegger is one of the most vigorous and talented.

To the score of "Pacific 231" Honegger has prefixed a manifesto which begins as follows—

"I have always entertained a passionate love for railway engines. To me they are as live beings, and I love them as other people love women or horses."

This sounds, I am afraid, like mere *blague*, but let me quote further from Mr. Honegger's pronouncement—

"In this work I sought not to imitate the noises of an engine, but to translate into a musical structure a visual impression and a feeling of physical elation."

Now this, I think, suggests that Mr. Honegger is a serious artist and knows what he is doing. To give a musical imitation of a railway engine might be funny, but it would not be art as we know it to-day, although all the arts have probably had their origin in some such primitive practice. But to translate into

musical structure a vivid impression is surely the work of a creative musician. One may criticise adversely, if one likes, the nature of Mr. Honegger's vivid impressions; one may deplore that he should "love" railway engines as other people "love" women or horses; but, after hearing "Pacific 231," I find myself quite unable to regret that Mr. Honegger does not resemble other young composers in their love of nothing but imitating the loves of Brahms, Wagner, Strauss, etc. For Mr. Honegger has this fundamental virtue of the creative artist, that which gives originality and value to his work—namely, that he feels for himself and has a sensory experience of his own which he seeks to express in his art.

The next point is whether Mr. Honegger's impression "gets through," whether he expresses it successfully or not. He describes his composition in these words: "The piece begins with the contemplation of the engine at rest, quietly panting. Then comes the start, and the gradual acquisition of speed leads up to the lyrical and pathetic impression of the three-hundred-ton train forging ahead through the night at eighty miles an hour." I would call attention to that adjective "pathetic." Does it not suggest that Mr. Honegger has had a definite impression and a very individual one? Well, the music is completely successful. There is no doubt about it whatever. Mr. Honegger has succeeded in translating his impression into a "musical structure" which conveys it to us so that we also share in Mr. Honegger's impression. To say this is to say that "Pacific 231" is a genuine work of art, however deeply some music-lovers may resent a musician troubling himself and them with impressions of railway engines.

The general nature and character of an artist's impressions is a matter apart from the fact that he is an artist, and whether we like or dislike his subject-matter will depend upon our own tastes. Those who have a catholic taste in music will enjoy Strauss's "Also sprach Zarathustra" as well as "Pacific 231," although they will not necessarily think that "Also sprach Zarathustra" is equally good and successful all over. But the musician of catholic taste will willingly admit that Strauss's composition is a more ambitious one than Honegger's; it is an attempt to do a bigger thing. Whereas, however, the Honegger is a complete success, the Strauss work is at least a partial failure. And if we analysed the work very closely, seeking an explanation for this—bearing in mind that Strauss is a musician of undeniably proven musical genius, and of a genius larger in scale than Honegger has yet shown himself to be—we should find, I think,

that those passages of "Zarathustra" which seem weak and ineffective are so not because Strauss lacked, or in any way temporarily failed in, the technique of expressing himself musically, but because he had no genuine impression to convey. A mere vague appreciation of the grandiloquence of Nietzsche with a partly snobbish perception of Nietzsche's great reputation were the main motive forces behind this grandiose work, with the result that this work to-day sounds to us empty and thin.

It does not all sound so; there is one section of it which hits the senses with that direct fresh impact which we get from all genuine impressions successfully expressed. It is the dance section which depicts Zarathustra, who "laughs under rose-bush and hedges of lilies" when "all heaviness is turned to lightness, every body to a dancing thing, every spirit to a bird." Here we get the merry, fantastic Strauss, the Strauss of that amazing musical masterpiece, "The Merry Pranks of Till Eulenspiegel," with its quips, its sallies, its drama, and its irony. We have accepted as legitimate the expression in music of the life-history of a rogue, and it is not taking us much farther to accept now the impression of a railway engine translated into musical structure.

The audience at the Philharmonic plainly enjoyed "Pacific 231," although it was greeted at its conclusion with boos and hisses, which, of course, raised counter-cheering and clapping. The consequence was that we all enjoyed the last Philharmonic concert exceedingly. The day will probably never come when it will be no longer possible to surprise an audience into a hostile demonstration—even musical critics are still occasionally known to lose their professional sang-froid; but if the public were ever educated to the point of accepting anything—however startling and new—in perfect philosophic calm, the concert-hall would be a duller place than it is.

I should like to congratulate the Hon. Committee of Management of the Philharmonic Society on their enterprise in performing "Pacific 231" and on the interesting character of the programmes of this and the next concert on Feb. 26. In the meantime, the Philharmonic subscribers had better prepare themselves for another shock, for on Feb. 26 M. Ernest Ansermet is to conduct the first performance of a new violin concerto by Prokofiev, to be played by Joseph Szigeti. Mr. Prokofiev is one of the best of younger living Russian composers. His three pianoforte concertos are extremely interesting, and I shall look forward with much curiosity to hearing his first violin concerto.

W. T. TURNER.

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Fashions and Fancies.

The New Spring Fashions.

Rumour is rife regarding the new fashions, and everyone wishing to prove for themselves what really will be worn this spring should visit Debenham and Freebody's, Wigmore Street, W., who are infallible authorities. Several characteristic models are pictured on page 265. In the left-hand corner is a delightful afternoon frock in black kasha over black satin. The long tunic, embroidered with steel beads and edged with looped chenille, shows the new circular flare. The evening frock, a Premet model, has a fluted over-tunic of black lace, and the satin under-skirt is hemmed with flat silken roses in vivid hues. On the right is an ideal wrap-coat for spring days, carried out in black repp and plaid kasha. The vogue for the high crown is well illustrated in the two delightful hats at the top of the page. The first is expressed



A useful accessory for the motorist: a morocco motoring case with silver-mounted fittings and ivory brushes. It hails from Mappin and Webb.

in pedal straw with a brim of petersham and mount of ostrich feathers; and the second in black pedal straw and petersham strapped with leather.

The Inexpensive Gown Department.

It must not be supposed, however, that only those with generous dress allowances may realise the ambition of a frock from



A beautiful travelling case from Mappin and Webb's, 158, Oxford Street, W. The case is of morocco leather lined with silk, and the fittings are in tortoiseshell and silver.

Debenham and Freebody. On the contrary, there is a splendid Inexpensive Gown Department which studies every need. A dance frock in rose crêpe-de-Chine stamped with gold leaves, the long tunic bordered with ruched ribbon edged with gold, can be secured for 6½ guineas; and at 7½ guineas are numbers of pretty evening frocks in every colour of the rainbow, many richly embroidered with beads. One striking model has a tunic of gold lace bordered with fur over rich flame satin. Then there are long-sleeved restaurant gowns in many coloured brocades, deeply bordered with fur, some with long tunics, others boasting long flaring coatees. And tailored coat-frocks in repp and checked suitings range from 6½ guineas.

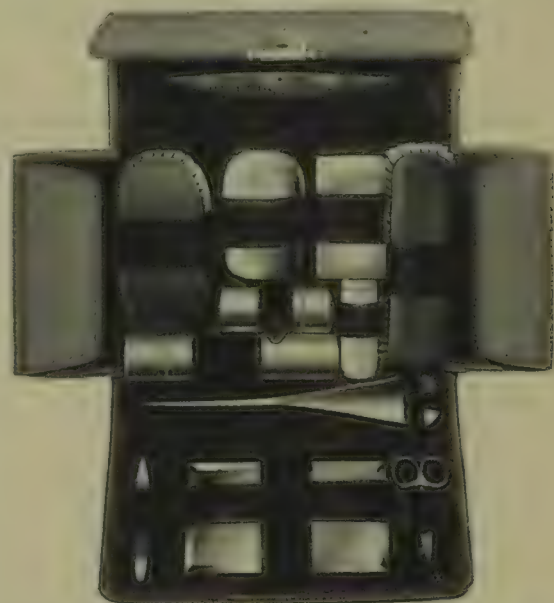
Travelling and Motor Cases.

Motoring in the spring is a delight which never palls, and each day the steadily increasing number of cars on the road proves that this mode of travelling is becoming more popular. To ardent motorists the accessories pictured here will prove invaluable. They may be studied at Mappin and Webb's, whose salons are at 158, Oxford Street, W., 172, Regent Street, W., and 2, Queen Victoria Street, E.C. Above is a morocco leather travelling case fitted with every toilet requisite the fastidious woman could desire. The fittings are tortoiseshell and silver, the bottles and jars being of cut glass. Less elaborate but equally resourceful is the morocco motoring case on

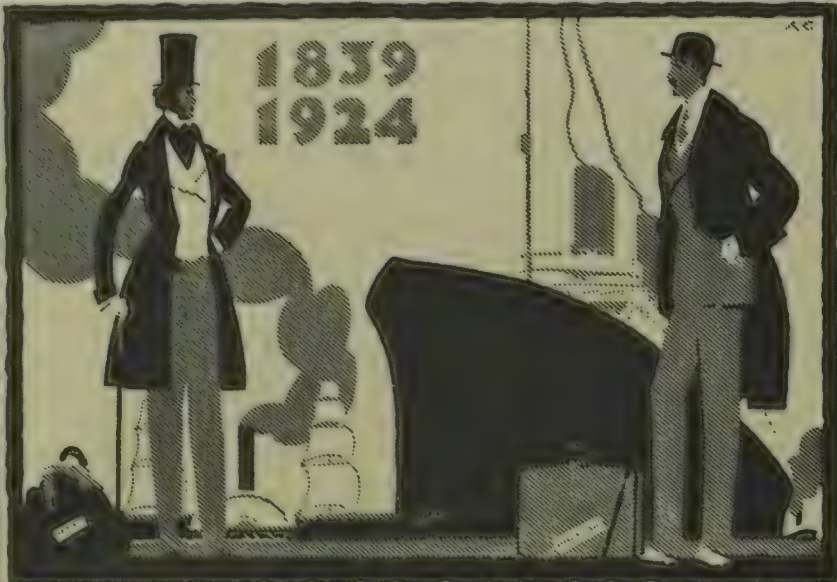
the left. Made with patent extending ends, the case contains a complete set of plain sterling silver-mounted toilet bottles and jars, as well as ivory brushes, manicure implements, etc. Then a man will find every need satisfied in the compact roll-up dressing-case on the right, which costs only £4 15s. The case is of fine hide lined with leather, and when closed measures 10 by 8 by 2½ in. It contains a complete set of nickel fittings and ebony brushes. Cases of a similar genre can be obtained in all sizes and prices, and much useful information can be gleaned from the well-illustrated catalogue which will be sent gratis and post free to all who mention the name of this paper.

Novelty of the Week.

New polo sweaters in soft Egyptian designs and colourings, fashioned of fine wool stockinette which has the appearance of cashmere, can be secured for the pleasantly modest sum of 25s. On application to this paper, I shall be pleased to give the name and address of the firm where they may be obtained.



A compact "roll-up" dressing-case for a man, in hide lined with leather containing nickel and ebony fittings. Designed and carried out by Mappin and Webb.



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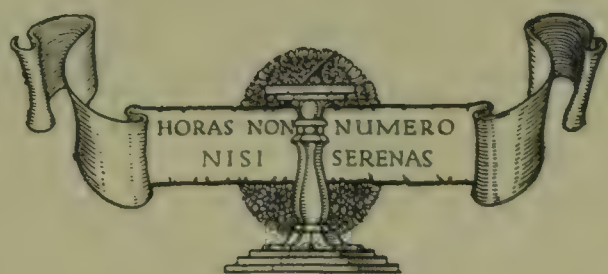
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TALKING MACHINE NOTES.

THE "PLEATED DIAPHRAGM."

THE new "His Master's Voice" gramophone, which is without a horn, sound-box, or tone-arm, is so distinct a novelty that I have refrained from writing about it until such time as I had been able to give it a fair trial. It is said that a casual observation led to the discovery, by the eminent French scientist M. Louis Lumière, of the peculiar acoustic properties of the pleated diaphragm. He happened one day to be handling an ordinary circular paper fan, and upon striking the centre he was impressed by the resonance and volume of the sound produced. He set himself to discover the reason, and found that the secret lay in the twisting of the pleats of the fan, which, when opened to its full extent, has its outside edge or periphery at right angles to the folds at the centre.

As a gramophonist, and a very enthusiastic one, M. Lumière at once grasped the possibilities of his discovery, and he commenced forthwith to apply his theory to his favourite instrument. He evolved a suitable type of diaphragm, a method of transmitting vibrations from the centre to the outside edge, and a means of holding the needle.

His experiments suffered a great deal of interruption, as the Great War made more urgent claims upon his inventive abilities, to which he responded with distinction. One outcome of his successful war-work was the extension of the provisional patent on his pleated diaphragm, in order to enable him to complete his experiments. This he did, and then placed his invention in the hands of the Gramophone Company ("His Master's Voice") for development into a commercial proposition, with results that should interest every gramophone lover.

The Pleated Diaphragm gramophone is a handsome affair, the gilding of the diaphragm being quite an inspiration. Particularly ingenious are the contrivances for allowing only the requisite weight to rest on the record, and the method of operating is simplicity itself.

So full is the volume given by the pleated diaphragm that in many cases a half-tone needle will be found of sufficient power for the average room. The quality of reproduction is very natural, and as regards piano-forte records, especially modern ones, the effect is quite startling in its realism. For detail in orchestral playing the pleated diaphragm is again excellent, and

voices lose the rather hard, unyielding tone that is so often noticeable in ordinary gramophone reproduction. To me, however, the most striking difference lies in the diffusion of tone instead of its being directed through a tube, one result being that one can stand

which should exercise a profound influence on the science of the gramophone.

A HISTORICAL CATALOGUE.

Modern recording does not monopolise all that is good, and it has more than once been my lot to lament the impossibility of replacing a particularly cherished "old" record, on its wearing out, by reason that it has been taken off the catalogue. "His Master's Voice" have taken an important step towards combating this, by issuing a "No. 2 Catalogue of records of unique and historical interest." This volume is divided into three sections: (1) *The Art of a Past Generation*. This contains records by famous artists who have passed away, including Bernhardt, Patti, Tamagno, Plançon, Lewis Waller, Santley, etc. (2) *The Development of an Art*. This section is made up of the earlier records made by artists who are, happily, still with us. Battistini, Calvé, Chaliapine, Destinn, Kubelik, McCormack, Melba, Paderewski, and Tetrazzini are among those who contribute to this very interesting section. (3) *History Told by the Gramophone*. This section is headed by the records made by their Majesties King George and Queen Mary and H.R.H. the Prince of Wales. Then follow records of utterances on various subjects of national interest by famous statesmen, clerics, and soldiers, together with speeches by several of the past Presidents of the United States of America. This remarkable little book is, in a sense, the history of the gramophone industry, and will recall many memories to old gramophonists.

RECENT RECORDS.

Complete instrumental works form the most important part of the new lists. They include: The "Jupiter" Symphony of Mozart, played by the Symphony Orchestra under Albert Coates (H.M.V., four double-sided records, of which one side is taken by the same composer's "Impresario" Overture); Brahms's Symphony No. 1 in C minor, by the London Symphony Orchestra, conducted by Felix Weingartner (Columbia, five d.s. records); Mozart's Quartet in B flat major in six parts, played by the Lener String Quartet (Columbia); Delius' No. 2 Sonata for violin and piano, by Albert Sammons (violin) and E. Howard Jones (piano) in four parts (two d.s. records, Columbia); and Tchaikovsky's Quartet in F. Op. 18, played by the Catterall String Quartet (H.M.V., four d.s. records). What a feast for the music lover! 1925 has opened auspiciously.

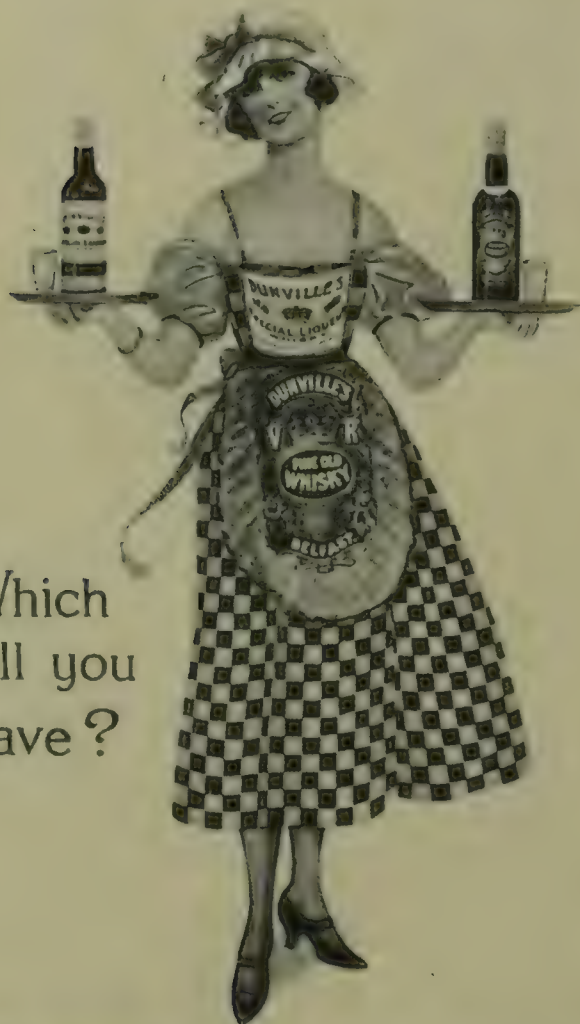
STYLUS.



A ROYAL "RECORDER": KING ALFONSO OF SPAIN MAKING A GRAMOPHONE RECORD IN A ROOM OF THE PALACE AT MADRID.

This record consisted of two messages, one to the Spanish people, and the other to the South American Republics, and the profits from the sale of it will be handed over to the King of Spain for the purchase of comforts for the Spanish troops in Morocco. The recording was carried out by the Spanish Gramophone Company, Ltd. ("His Master's Voice").

quite close to the instrument in comfort when a Caruso record is being played, and another that one can be in any part of the room and hear a record equally well. It is a most interesting innovation,



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RADIO NOTES.

ON or about Feb. 14 the London Broadcasting station's transmissions will issue through space from the top of a high building in the West End of London, instead of from Marconi House, Strand. The broadcasting studios will remain at 2, Savoy Hill, and a land line will connect the two departments. A tall steel lattice-mast has been erected to support the aerial wires above the new site, and the power for transmission purposes is to be increased from $1\frac{1}{2}$ to 3 kilowatts. Listeners, especially those with crystal sets, should benefit by the new arrangement.

The prices of valves have been reduced again, and now the cost of a "general purpose" valve is only eleven shillings; whilst "Dull Emitters" for use with dry batteries can be had for a guinea each. Although the initial cost of a dull-emitter valve is high, the amount is soon saved, as the following details will show. A bright valve, costing eleven shillings, must be operated by an accumulator, for which two pounds would not be too much to pay. With the usual nightly use, an accumulator should be charged every week at the cost of, say, eighteen-pence. Therefore, in one year the approximate cost of running a bright valve in a one-valve set will be: valve, 11s., accumulator, £2, charging, £3 18s.—total, £6 9s. A common electric-bell battery, costing two shillings, will work a dull-emitter valve for about three months. Therefore, the yearly costs with this type of valve will be: valve, 21s., four bell-batteries, 8s.—total, £1 9s.—a saving of five pounds. Another advantage of the dull-emitter valve is that space for the batteries can be found usually inside the receiving-set, whereas an accumulator, with its connecting wires, must be placed elsewhere. Owners of multi-valve receivers who accidentally break, or burn out, any of the valves, would do well to note that it is advisable to replace with valves of the same make as those already in the set. Otherwise, reception may not be as good as that obtained previously.

An instance of this recently came to the notice of the writer, who listened to very poor reception from a four-valve set of first-class make. The set, as supplied by the makers, gave perfect loud-speaker results during a whole year. Later two of the valves were put out of action—the filaments being broken through bumping the set during removal from one place to another. Two

state which was remedied by introducing new valves of one make.

Another cause of bad reproduction often can be traced to deteriorated high-tension batteries. Some people who build their own sets try to save cost by using a number of the small pocket-lamp batteries wired together in series; but these small cells do not last long, and as soon as one deteriorates, owing to dampness or some other cause, reception is spoiled by intermittent crackling noises. It is far more economical in the long run, and generally much more satisfactory, to buy a well-made high-tension battery complete. The larger the individual cells are in a H.T. battery, the longer will it last; and the best kind we have come across recently is that known as the Super-Radio Battery, supplied by Burndept, Ltd.

Some interesting particulars of the medium—generally known as the microphone—which enables a million or more listeners to hear the words of one person, the music from a large orchestra, or any other sounds made within its range, were given in the last issue of *Radio Times*. The device is a British invention, known as the "Round-Sykes Magneto-phone," invented by Mr. Sykes, and developed by Captain Round, of the Marconi Company. Its action depends upon the vibration of a diaphragm caused by sound-waves impinging upon it; but the diaphragm is a departure from other methods, in that it consists of an annular coil of wire backed by thin paper, hanging in a magnetic field between steel pole-pieces. Vaseline and cotton wool also have functions to perform in this wonderful instrument, which changes sound-waves into electric impulses, the effect of which we hear when listening to broadcasts.

W. H. S.

Prince Louis of Monaco, who was staying at Palm Beach recently, has just left for South Carolina, bent on a shooting expedition. While travelling in the United States H.S.H. is keeping the strictest incognito. His return to Monaco is fixed for the end of February.



A GREAT SCIENTIST BROADCASTS: SIR OLIVER LODGE AT "2LO." Sir Oliver Lodge, the eminent British scientist, is giving a series of talks in explanation of the ether, from the London Broadcasting Station. His next talk will be given on the 17th instant, when the subject will be "The Magnetic Behaviour of the Ether."

Photograph by Barratt.

new valves were bought in a hurry, each of different makes, and also of different make from those intact in the set. This mixture of three types of valves, each with unmatched characteristics, resulted in impure and weak reproduction of broadcasts, a

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THE CHRONICLE OF THE CAR.

An Excellent Small Car.

Often I find myself in a difficulty in deciding upon what is really the most interesting type of car from the driver's point of view. Sometimes it falls to my lot to be handling a super-six or some car of such class, and to leave it with the impression that, after all, there is everything to be said for the smooth, silky, silent car which simply glides along, mile after mile, and which takes its hills in the same effortless way in which it covers the level road. Next day or a few days after I take hold of one of the almost terribly efficient little cars which modern motor engineering has produced to confound the theory that you cannot get a quart into a pint pot, and the impression created by the bigger vehicle fades away in the light of the interest there is in coaxing the very best that lies in a really little motor. Its vim and sheer feeling of life are a joy to the driver who regards the motor-car as something rather more than a means of mere loco-

motion. There is really nothing like the feel of one of the best of the small ones over a few miles of give-and-take road, because of the idea one gets of the super-efficiency of the modern high-speed motor. On a recent day I took out one of the new 9-h.p. Rover four-cylinder cars, and covered between fifty and sixty miles in the morning. This, I know, is not a long distance, but it is quite enough for one to get a perfectly adequate idea of performance and capabilities. This particular car had a saloon body of Weymann construction, but neither weight nor head-resistance seemed to have any effect on the speed of the car. The maximum speed on the level reached fifty miles an hour, which is wonderfully good going for a car of such low horse-power rating. The ordinary hills peculiar to the

Surrey main roads seemed to be flattened out altogether, for scarcely a revolution was dropped on any of them. Pebble Hill, which has a gradient at its worst of about one in five, I think, was climbed easily on second speed—which is very good going indeed, the more so as I should say the speed did not fall below about eighteen miles an hour. The acceleration was very good, brakes excellent, and the car generally very quiet except when running all out. At thirty miles an hour it was very quiet indeed. Thirty to thirty-five miles an hour seemed to be the speed at which the Rover was most happy, and at that it would run all day without a murmur. Altogether a very creditable little car indeed.

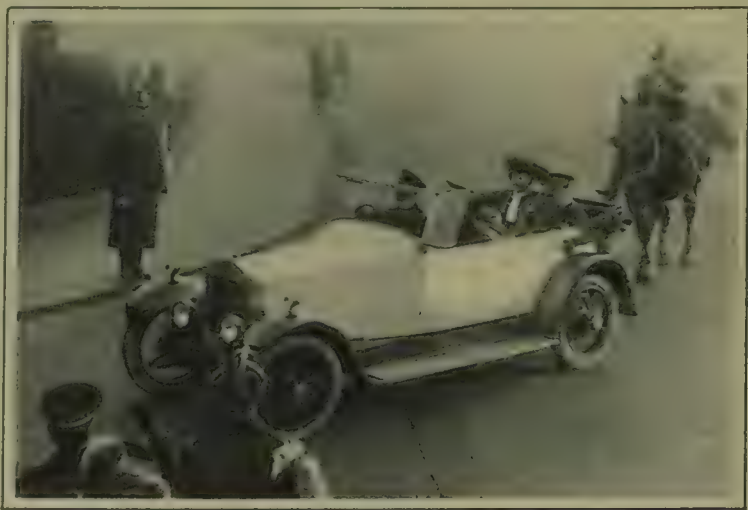
Is This a Record? If you were to ask the manufacturers of the 14-h.p. Crossley

what petrol-consumption was usual with this model, they would tell you 30 m.p.g., the figure they quote in their advertisements. This, however, is constantly being proved to be a very



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The body, designed and built by the Lanchester Company, is particularly roomy, accommodating three on the front seat, and there is a spacious dickey seat. Spring buffers are fitted at both front and rear. The car is equipped with four-wheel brakes of Lanchester patent design, which is claimed to be the simplest and safest method of four-wheel braking yet devised.



ROYALTY IN A ROLLS-ROYCE: PRINCE GEORGE (SALUTING), ACCOMPANIED BY THE LORD MAYOR OF BRISTOL, IN ONE OF TWO ROLLS-ROYCE CARS USED BY HIM DURING HIS VISIT TO THAT CITY.

conservative estimate. Not long ago a 14 Crossley won the Lord Delamere Cup in British East Africa with a petrol-consumption of 36.2 m.p.g. Letters from owners claiming over 30 m.p.g. are frequently received, and now a letter from Australia in the following terms: "I beg to report two good performances put up by my Crossley. The first was a run from my place (Yelbenie) to Perth, 146 miles, in 4 hours 42 min. with two ladies as passengers, one of whom is sixty-five years of age. The second performance was doing the return journey on a shade over four gallons of petrol, or about 34 miles per gallon. This and better will do me." Is 36.2 m.p.g. a record for a car of this horse-power?

A Record Attempt. On the 21st inst. an attempt is to be made on the 24-hours' record with the two-litre Sunbeam car on the Montlhery track, near Paris. The drivers will be Major Segrave, Mr. J. G. Thomas and Count Conelli.—W. W.

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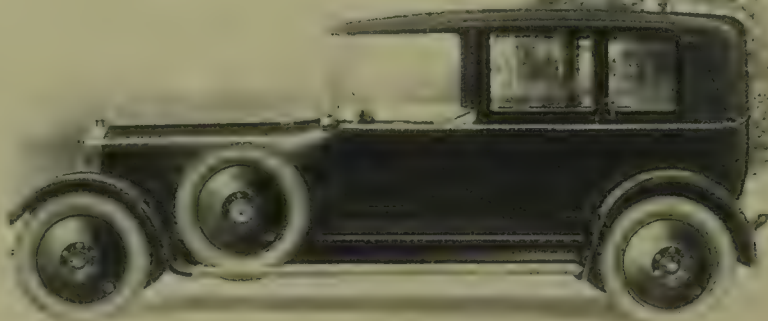
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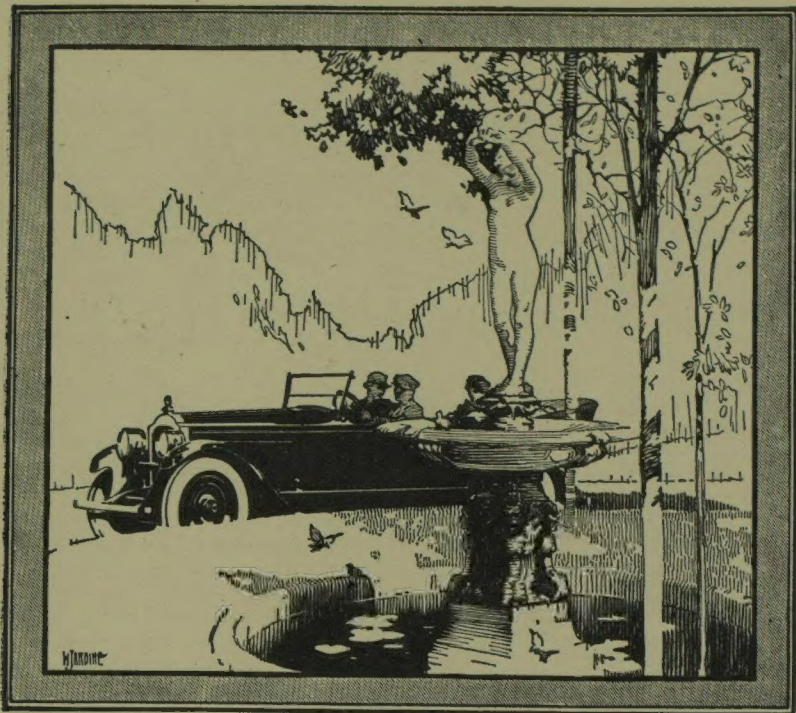
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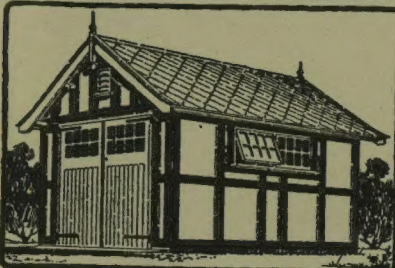
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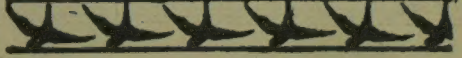
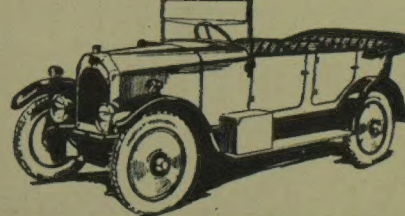
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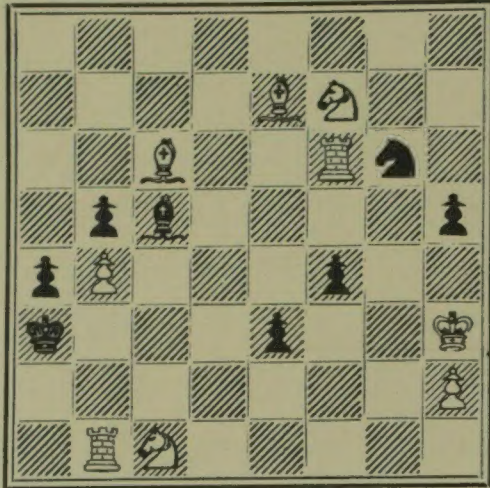
To CORRESPONDENTS.—Communications for this department should be addressed to the Chess Editor, 15, Essex Street, Strand, W.C.2.

- OTTO MIKOLASCHKE (Vienna).—You must look at No. 3948 again. After, 1. Te 6—e 4 (ch), Kd 4—d 3; 2. Te 4—e 3 does not give mate. We are quite familiar with your notation.
- S. HORNER (Toulon).—The large diagram of an amended position admits of no solution in two moves; but, whatever its merits, even if correct, it would remain too ugly to publish. The small diagram, with the key Q to R 6th, is an impossible position, because it can only be accounted for by six captures from White, whereas he remains with eleven pieces on the board.
- J. HERTZBERGER (Manchester).—By all means use the notation with which you are best acquainted.
- J. W. SMEDLEY (Brooklyn, New York).—You have found the key-move of No. 3947, but your continuation is faulty. After Black plays 1. — P to Q 4th; 2. R to K B 3rd affords no solution. The reply to No. 3945 ought to have been printed, Q to Q Kt 5th.
- T. K. WIGAN (Woking).—Your criticism of No. 3948 is a very just one; but only a few solvers noticed the points to which you refer, and in which the worth of the position is to be found.
- P. COOPER (Balham).—We trust our column will afford you some little compensation for what you otherwise lose from the causes mentioned.
- JOHN HANNAN (Newburgh, N.Y.).—The subtleties of No. 3946 have by this time been disclosed, so nothing further need be said on that point, and you are credited with the successful solution of four of the special two-movers. The answer to No. 3945 should have been printed Q to Q Kt 5th.
- R. W. HILL (Melbourne).—We hope your letter does not mean such a change of circumstances as will affect the regular flow of answers we have received from you so long. You have, in any case, our best wishes for your future.
- J. E. HOUSEMAN (Chicoutimi).—Although you have sent the right key for No. 3947, your analysis does not show you have solved the problem. You entirely ignore Black's moves with his pawns, which constitute the essence of the position.
- W. KIRKMAN (Hereford).—Does Kt take Kt look a probable key for one of our problems?
- H. WARD (West Kirby).—After White plays, 2. R to Q B 4th (dis ch), is there any reason to prevent Black playing, 2. — P to Kt 3rd, or R to B 4th?
- A. C. VAUGHAN (Wellington).—It was a case of unconscious memory, the clue to which is to be found in your letter of three months ago.
- CORRECT SOLUTIONS OF Problem No. 3943 received from Horace E. McFarland (St. Louis, Mo.); of No. 3944 from R W Hill (Melbourne); of No. 3945 from Horace E. McFarland (St. Louis, Mo.); of No. 3946 from J M K Lupton (Richmond); and of No. 3947 from E J Gibbs (East Ham), J W Smedley (Brooklyn, N.Y.), P Cooper (Clapham), and J E Houseman (Chicoutimi).

SOLUTION OF PROBLEM NO. 3948.—By E. BOSWELL.

- WHITE
1. R to K 3rd
2. Mates accordingly.
- BLACK
Anything

A problem that requires looking beyond its key to discover its merits. The way in which each move of Black's Rook along its fourth row gives rise to a different mate affords an example of skilful construction that can be easily overlooked on the first flush of successful solution. Only a few of our solvers have noted this; and the warmest appreciation comes from those who themselves are composers.

PROBLEM NO. 3950.—By L. W. CAFFERATA.
BLACK.

WHITE.
White to play, and mate in three moves.

CORRECT SOLUTIONS OF Problem No. 3948 received from Rev. W. Scott (Elgin), H W Satow (Bangor), C H Watson (Masham), T K Wigan (Woking), L W Cafferata (Newark), R B N (Tewkesbury), J P Smith (Cricklewood), A W Hamilton-Gell (Exeter), J C Cruse (Ravenscourt Park), C B S (Canterbury), E W Punnett (Brixton), Lewis Graham (Cupar, Fife), J C Stackhouse (Torquay), M E Jowett (Grange-on-Sands), R C Durell (Hendon), J Hunter (Leicester),

R P Nicholson (Crayke), E G B Barlow (Bournemouth), S Caldwell (Hove), G Stillingfleet Johnson (Cobham), A Edmeston (Worsley), M S Maughan (Barton-on-Sea), R B Pearce (Happisburgh), A C Vaughan (Wellington), William Kirkman (Hereford), E J Gibbs (East Ham), J Hertzberger (Manchester), P Cooper (Clapham), C Graham (Bristol), W N Powell (Ledbury), and H Burgess (St. Leonards-on-Sea).

CORRECT SOLUTIONS OF No. 3949 received from T K Wigan (Woking), C H Watson (Masham), L W Cafferata (Farndon), C B S (Canterbury), E G B Barlow (Bournemouth), R C Durell (Hendon), R B N (Tewkesbury), G Stillingfleet Johnson (Cobham), J C Stackhouse (Torquay), E J Gibbs (East Ham), W N Powell (Ledbury), J Hunter (Leicester), A Edmeston (Worsley), J P Smith (Cricklewood), A C Vaughan (Wellington), S Caldwell (Hove), and R B Pearce (Happisburgh).

CORRECT SOLUTIONS OF SPECIAL PROBLEMS received from A Carrington Smith (Quebec), 2; John Hannan (Newburgh, N.Y.), 4; R B N (Tewkesbury), 1 additional; J C Cruse (Ravenscourt Park), 2 additional; M S Maughan (Barton-on-Sea), 1 additional; John Hannan (Newburgh, N.Y.), 1 additional; J E Houseman (Chicoutimi), 5.

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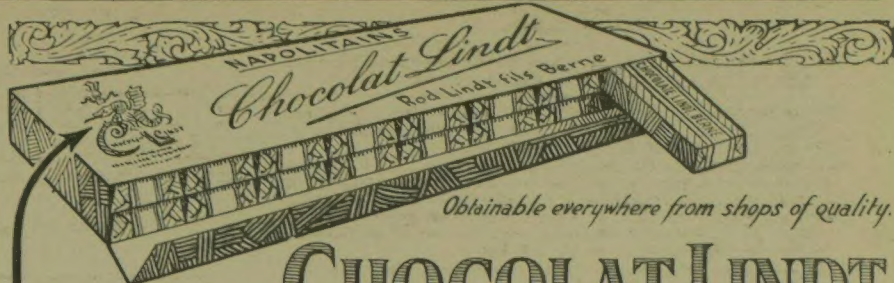
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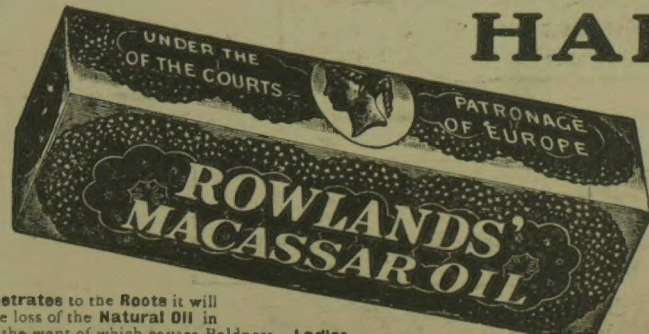
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